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Macroeconomic Policies for Poverty Reduction in Cambodia

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Macroeconomic Policies for Poverty Reduction in Cambodia

Final Report

Prepared by

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Acronyms and Abbreviations

ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
AIA	ASEAN Investment Area
AICO	ASEAN Industrial Cooperation Scheme
CAS	Country Assistance Strategies
CEPT	Common Effective Preferential Tariff Agreement
CPI	Consumer price index
EPZs	Export processing zones
FDI	Foreign direct investment
FPM	Financial Programming Model
GEM	General equilibrium model
HIPC	Heavily Indebted Poor Countries
IMMF	Integrated Quantitative Macroeconomic Framework
IMF	International Monetary Fund
IF	Integrated Framework
IL	Inclusion List
I-PRSP	Interim Poverty Reduction Strategy Paper
ITC	International Trade Commission
MFN	Most Favored Nation
NBC	National Bank of Cambodia
NPRD	National Program to Rehabilitate and Develop Cambodia
PEP	Public Expenditure Program
PIP	Public Investment Program
PPA	Participatory Poverty Assessment
PPP	producer price index
PRGF	Poverty Reduction and Growth Facility
PRSP	Poverty Reduction Strategy Paper
RGC	Royal Government of Cambodia
SAM	Social accounting matrix
SEDP-I	First Socioeconomic Development Plan
SEDP-II	Second Socioeconomic Development Plan
SEZ	Special economic zones
TFP	Total factor productivity
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNDAF	United Nations Development Assistance Framework
VAT	Value added tax
WTO	World Trade Organization

Executive Summary

The Royal Government of Cambodia (RGC) is currently formulating its medium-term strategy for sustainable economic growth and poverty reduction. As part of that process and with support from the ADB, the RGC has submitted to the World Bank and IMF its interim Poverty Reduction Strategy Paper (I-PRSP) that responds to the findings of the Participatory Poverty Assessment (PPA), and is in the process finalizing the Second Socio-Economic Development Plan (SEDP-II). While the major elements of the poverty reduction strategy are emerging, the specific relationship between macroeconomic policies and poverty reduction in Cambodia remains tenuous. The present study seeks to evaluate the poverty reduction effects of economic policies in the context of a structural macroeconomic model of Cambodia that considers poverty reduction policies driven by fiscal revenue and expenditure initiatives, international trade, cross-border investments and international capital flows.

Building on existing methodologies, we estimate the effects of macroeconomic policies on poverty in three stages. First, in Chapter 1 we examine the nature of the response of poverty to growth in terms of that portion associated with economic growth and that portion associated with income inequality. Second, in Chapters 3 and 4 we examine the individual effects of key macroeconomic policies on the expenditure side of the economy. Finally, in Chapter 5 we measure the impact of relative price changes between tradables and non-tradables on agriculture, industry and services, and link these sectors to rural and urban poverty.

The modeling framework follows the integrated quantitative macroeconomic framework (IMMPA) currently being designed by the World Bank for the analysis of the impact of adjustment policies and external shocks on poverty and income distribution. The IMMPA data requirements, however, include a social accounting matrix (SAM) to evaluate the impact that a country's economic and social policies have on poverty and welfare levels. An alternative approach being developed by the IMMPA project is more compatible with data availability in Cambodia. The approach links existing models together, and therefore takes the modular approach adopted in the present study. Annex A derives the model and presents the equation estimates for the behavioral components of the model, while Annex B presents the model in its Eviews format.

Poverty and Growth

The incidence of poverty in Cambodia has fallen from 39 percent to 36 percent between 1993-94 and 1997, although the absolute number of people living below the poverty line has remained virtually unchanged because of population growth.¹ The incidence of rural poverty tends to dominate the national average because almost 80 percent of the poor are located in rural areas. For that reason, the 2.9 percentage point decline in Cambodia's

¹ The characterization of poverty in Cambodia is based on assessments undertaken in 1993-94 and 1997. A more recent assessment was conducted using 1999 data but has not been released by the RGC.

overall poverty has been mainly attributed to the 2.4 percentage point decline in rural poverty, while the decline in urban poverty contributed 0.7 percentage points, and migration added -0.2 percentage points (Table S.1).

The RGC's emphasis on economic growth as a strategy to alleviate poverty is well founded on the large and growing empirical evidence that sustainable economic growth rates successfully lower poverty levels. The nature of the response of poverty to growth can be ascertained from the effect of the distribution-corrected average income growth on poverty. The overall responsiveness of poverty to changes in real per capita income is measured by the 'elasticity of poverty', which is the percentage change in the absolute poverty incidence relative to the growth rate of income. For Cambodia, the -0.6 poverty elasticity is substantially lower than those of most other countries in the region, although it is similar to those of Lao PDR and the Philippines.

The change in Cambodia's poverty can then be separated into the 'economic growth' component, which is associated with overall economic growth, and the 'inequality' component, which is associated with changes in the distribution of income (Table S.2). The growth elasticity of -0.9 and the inequality elasticity of 0.3 are below those estimates for most other countries. Nevertheless, Cambodia's low inequality elasticity in both rural and urban areas means that the poor benefit nearly as much from economic growth as the non-poor.

Key Elements of the Poverty Reduction Strategy

Cambodia's I-PRSP has three broad goals: (1) a long-term, sustainable economic growth of 6 to 7 percent a year, (2) an equitable distribution of income at the national level, in the urban and rural areas and between genders, and (3) a sustainable utilization of natural resources and environmental protection. While growth is to be driven by macroeconomic stability, structural adjustments to shift resources to productive sectors, and the integration of the country into the global economy, equity is to be achieved through government supported improvements in education, health, rural development and agriculture.

In macroeconomic policy, the strategy relies on prudent macroeconomic management of a market-driven open economy. Economic growth is to be achieved with inflation under 4 percent, a reduced external current account deficit, and prudent management of external

Table S.1
Poverty in Cambodia, 1993/94 – 1997

	1993/94	1997	Change
Headcount Index:			
Cambodia, of which	39.0	36.1	-2.9
Rural Areas	43.1	40.1	-3.0
Urban Areas	24.2	20.9	-3.3
<i>Phnom Penh</i>	11.4	11.1	-0.3
<i>Other Urban</i>	36.6	29.9	-6.7
Decomposition of Poverty Change			
Cambodia, of which	-	-	-2.9
Rural Areas	-	-	-2.4
Urban Areas	-	-	-0.7
Migration	-	-	0.2
Inequality (Gini Coefficient)			
Cambodia, of which	38	42	4.0
Rural Areas	27	33	6.0
Urban Areas	42	45	3.4
<i>Phnom Penh</i>	39	46	7.0
<i>Other Urban</i>	44	44	0.0

Source: Headcount index from World Bank (1996) and MOP (1999); for decomposition of poverty change, see methodology explanation in text.

debt. To reach these objectives, the RGC will pursue fiscal reforms aimed at increasing revenue and improving the pattern and efficiency of spending. On the fiscal expenditure side, priority expenditures will be established on the basis of the Public Investment

Program (PIP), which should ensure that adequate funding is provided for health, education, agriculture and rural development under both the Public Expenditure Review and the Priority Action Plan. Defense and security expenditures are to be gradually reduced, and public investment in physical infrastructure and social sectors expanded.

The full PRSP will emerge from the Second Socio-economic Development Plan, 2001-2005 (SEDP-II). These two documents will be implemented in a single strategic framework for the Government. Like the first five-year plan, the primary development goal of SEDP-II is poverty reduction. The development objectives that support the primary goal are sustained growth with equity, social and cultural development, and sustainable management and use of natural resources and the environment. Sustained economic growth with equity is to be achieved with a real GDP average annual growth rate of 6.1 percent, with sector growth of 3.5 percent for agriculture, 7 percent for industry, and 8 percent for services. The poverty headcount index is to be reduced from

36 to around 31 percent.

Table S.3
Poverty Changes in Cambodia under SEDP-II with Poverty-Neutral versus Pro-Poor Policies

	Target Growth with Neutral Policies			Target Growth with Pro-Poor Policies		
	2000	2005	Change	2000	2005	Change
Real GDP Per Capita Index:						
Cambodia, of which	100	119	19%	100	119	19%
Rural Areas	100	108	8%	100	108	8%
Urban Areas	100	122	22%	100	122	22%
Headcount Index:						
Cambodia, of which	36	32	-12%	36	30	-18%
Rural Areas	40	38	-5%	40	37	-7%
Urban Areas	21	18	-13%	21	15	-27%
Inequality (Gini Coefficient)						
Cambodia, of which	42	50	19%	42	42	0%
Rural Areas	33	36	8%	33	33	0%
Urban Areas	45	55	22%	45	45	0%

Source: Derived from SEDP-II target growth rates and growth elasticities in Table 1.2.

Table S.2
Growth and Inequality Elasticities of Poverty in Cambodia

	Poverty Elasticity	Explained by		Pro-Poor Growth Index
		Growth Elasticity	Inequality Elasticity	
Cambodia	-0.61	-0.94	0.32	0.70
Rural Areas	-0.62	-0.86	0.23	0.73
Urban Areas	-0.58	-1.25	0.68	0.58
Phnom Penh	-0.14	-0.23	0.09	0.61
Other Urban	-0.98	-1.75	0.77	0.56

Based on our growth elasticity estimates, the target is almost tenable with neutral poverty-oriented policies and fully tenable with pro-poor policies. Neutral poverty-oriented policies resulting in a 4 percentage point poverty reduction would be driven by a 5 percent decline in the incidence of rural poverty and a 13 percent decline in urban poverty, and supported by rural to urban migration because of economic growth differentials between the agricultural sector, on the one hand, and the industry

and services sector on the other. Inequality, however, would rise significantly since economic growth is normally accompanied by greater income inequality. With pro-poor policies maintaining the existing distribution of income, it would be possible to lower the overall incidence of poverty from 36 to 30 percent between 2000 and 2005. The SEDP-II points to three areas for generating progressive distributional changes:

- ❑ Meso-policies to expand public expenditures on health and education, and shift spending from defense to agricultural and rural development programs.
- ❑ Macroeconomic policies to make agricultural and labor-intensive manufacturing exports more competitive by promoting de-dollarization of the economy through financial sector reforms aimed at creating riel-denominated assets, and increasing the international competitiveness of exports.
- ❑ Structural adjustment policies to reform credit schemes and ensure that credit reaches small-scale enterprises, liberalize trade and thereby lower the effective rates of protection and promote export-oriented activities, as well as land reform, price liberalization and privatization of agricultural activities.

Meso-Policies

The main influence of RGC's fiscal policies on inequity and the level of poverty has been through expenditures on social sectors, and specifically the priority services reaching the poor. The proportion of these expenditures directed at the social sectors is measured by the 'social allocation ratio', defined as the proportion of government expenditures on social sectors. The proportion of expenditures in those social sectors directed to priority sectors for the poor is then measured by the 'social priority ratio'. These priority services normally cover primary health care and education, but in Cambodia they comprise not only health and education, but also agriculture and rural development.

The major constraint on Cambodia's spending on social services has been its relatively small overall expenditure base. Current public expenditures represent less than 10 percent of GDP, in contrast to around 15 percent in Malaysia and Vietnam, which allocate 40 and 30 percent respectively of their total expenditures on social services. Cambodia's public expenditure ratio has not changed significantly since the start of the reforms. Social services allocations, however, have risen from 20 to 34 percent between 1994 and 2000.

Table S.4
Incidence of Public Expenditures on Social Sectors (Percentages)

	Public Expenditure Ratio a/	Social Allocation Ratio b/	Social Priority Ratio c/
1994	0.109	0.20	0.70
1995	0.091	0.22	0.67
1996	0.098	0.22	0.69
1997	0.088	0.23	0.68
1998	0.089	0.22	0.72
1999	0.097	0.27	0.75
2000d/	0.097	0.34	0.75
2001d/	0.103	0.34	0.76

a/ Ratio of current public expenditures to GDP.

b/ Ratio of total government expenditures in social sectors.

c/ Ratio of health and education in social sector expenditures.

d/ Based on budget projections by Ministry of Economy and Finance.

While meso-policies have a direct bearing on the poor, there are difficulties of quantifying the magnitude of their effect because in converting non-income welfare improvements into primary income improvements for the poor. Nevertheless, it is possible to approximate the impact of the RGC's meso-policies on the poor through the 'human expenditure impact ratio'. This index is equal to the priority service expenditures per person adjusted by the life expectancy, which in Cambodia has been rising, particularly in 2000-01. However, it is still below the ratio for Bangladesh (0.16), and considerably below that of Singapore (6.1). There is therefore considerable room for improving the impact of these policies. Specific channels include (a) reducing indirect taxes on the poor, (b) raising public expenditure relative to GDP (the public expenditure ratio), (c) raising the proportion of public expenditures directed at the social sectors (the social allocation ratio), (d) raising the share of spending on priority services in social sector expenditures (the social priority ratio), and (e) improving the efficiency of resources used in priority expenditures (the governance issue addressed by the ADB, the RGC, and the World Bank).

Table S.5
Human Expenditure Impact of Public Policies

	Human expenditure ratio a/	Human expenditure per person b/	Human expenditure impact ratio c/
1994	1.5%	\$3.5	0.07
1995	1.3%	\$3.3	0.06
1996	1.5%	\$3.8	0.07
1997	1.4%	\$3.7	0.07
1998	1.4%	\$3.4	0.06
1999	2.0%	\$5.0	0.09
2000 d/	2.5%	\$6.3	0.12
2001 d/	2.6%	\$6.9	0.13

a/ Ratio of priority service expenditures to GDP.

b/ Ratio of human expenditures per capita.

c/ Human expenditures per person divided by life expectancy.

d/ Based on budget projections by Ministry of Economy and Finance.

Pro-Poor Trade Policies

The Government's pro-poor trade strategy described in its report *A Pro-Poor Trade Sector Strategy for Cambodia: A Preliminary Concept Paper* is still being formulated and will be presented to the Tokyo CG meeting in June 2001. The RGC's report proposes three basic activities for implementing the pro-poor trade strategy: (1) shifting the balance of policy emphasis from issues of market access and macro-reforms for trade to micro- and meso-level issues of supply capacity; (2) focusing on the delivery of capacity-building support at the export-oriented enterprise level; and (3) stressing the regionalization and geographical decentralization of export businesses within Cambodia. This pro-poor trade sector strategy aims to become one of the building blocks of Cambodia's national poverty reduction strategy for the next five years and will be reflected in the final SEDP-II and full-PRSP documents as part of the growing recognition that openness is good for growth and poverty reduction.

The three proposed actions address what has come to be known as 'second-generation reforms' that target factors increasing the risk and cost of business transactions and weakening the response to new incentives and macroeconomic reforms. However, Cambodia's economic transformation is not a simple process, but the product of complex interactions among macroeconomic stabilization, incentive reforms, and institutional adaptation. Targeting only second-generation reforms is likely to resolve only one dimension of factors weakening Cambodia's international competitiveness.

Macroeconomic Policies in a Dollarized Economy

There are a number of benefits to the extensive dollarization of the Cambodian economy: (a) the relative insulation of the economy from exchange rate volatility, as occurred during the Asian Crisis, (b) the promotion of FDI as a result of currency stability, (c) facilitation of external trade because of reduced transactions costs, and (d) interest rates and inflation at U.S. levels when there is full dollarization. Against these benefits are several costs: (a) the loss of independent monetary and exchange rate policies, (b) the loss of seigniorage revenue from currency issuance, although some small amounts have been earned by the National Bank of Cambodia (NBC), and (c) possible erosion of competitiveness in non-dollarized Asian economies.

In examining the macroeconomic policy consequences on poverty, we are interested in Cambodia's exchange rate policy tradeoff between 'credibility', which promotes FDI and facilitates trade, and 'competitiveness', which can be undermined by the selection of the dollar as the convertible foreign currency being substituted for the riel. The ability of the RGC to affect changes in trade through macroeconomic policies depends on the capacity of the authorities to influence nominal exchange rate movements under a partially dollarized economy. To the extent that the RGC can bring about exchange rate movements that are not simply translated into domestic price changes, then the authorities can influence the real effective exchange rate and, through this instrument, affect the level of trade. However, if the high degree of dollarization in the economy causes any change in the nominal exchange rate to simply translate into inflation, then the authorities have little or not control over the real exchange rate and trade.

We have measured the exchange rate pass-through in the partially dollarized Cambodian economy by invoking the weak version of purchasing power parity (PPP) in which the price level of a country such as Cambodia is determined by its exchange rate relative to that of its trading partners, and exchange rate changes translate into proportional movements in the domestic price level. The data set consists of monthly series from 1993 to early 2000 of the consumer price index (CPI) as a measure of the

Table S.6
Cambodia: Real Cross Exchange Rate Indices, Total and by Trading Partner, against US\$ and US CPI (1997=100)

	1993	1994	1995	1996	1997	1998	1999	2000
World	105	107	102	108	100	91	96	98
Other Asia	106	108	102	109	100	89	96	99
Thailand	112	114	108	113	100	89	99	96
Singapore	96	98	98	100	100	101	93	92
Vietnam	85	85	83	97	100	101	92	89
Malaysia	108	104	101	104	100	82	83	84
Indonesia	112	113	105	111	100	34	65	77
Philippines	90	94	94	99	100	85	91	91
Myanmar	45	59	68	85	100	120	125	136
Lao PDR	222	224	167	187	100	82	138	175
China	90	66	75	89	100	114	106	103
Taiwan	107	105	98	98	100	96	95	99
Japan	121	126	124	107	100	105	113	118
European Union	103	103	103	102	100	113	103	93
United States	101	99	91	94	100	114	108	109

Note: REER = $NCR \cdot CPI_f / CPI_d$ where NCR is the nominal cross-rate index, and CPI_f and CPI_d are the foreign and domestic CPIs respectively. Data derived from IMF's World Economic Outlook and Ministry of Planning.

domestic price level, the nominal dollar exchange rate, and the U.S. producer price index (PPI) as a measure of international prices.

Our estimates yield a short-run pass-through elasticity of 0.3, while the long-run elasticity is 0.66. An estimate for the period since January 1998 yields similar results but somewhat smaller pass-through elasticities: 0.26 in the short-run, and 0.6 in the long-run. The results suggest that the dollarized Cambodian economy does have an ability to adjust its real exchange rate through a nominal devaluation, despite international trade transactions being quoted in U.S. dollars.

Cambodia's competitiveness in the ASEAN market is especially important for agricultural exports and rural poverty alleviation. Yet the country's external competitiveness based on the real exchange rate of the riel has been declining since 1998. The decline has occurred in the Asian market, notably Indonesia, the Philippines, Myanmar, Lao PRD, and Japan (Table S.6). It has improved its competitiveness in the E.U. market and, to a lesser extent, in that of the United States. The situation is unlikely to improve in the near future as countries throughout the Asian region devalue their currencies in response to weakening global and domestic market conditions. Calculations based on the average of daily nominal exchange rates for Cambodia's major Asian markets, weighted by Cambodia's trade with each of those countries show that there is a clear trend toward a nominal exchange rate devaluation in the Asian economies, whereas Cambodia's nominal cross-rate with those currencies is appreciating.

Table S.7
Projections of Key Macroeconomic and Poverty Variables
(Annual percent change)

	Historical 1997-2000	Projected 2001-2005
Gross Domestic Product (Constant KR)		
Exports of Goods and NFS	9.1%	4.6%
Imports of Goods and NFS	14.1%	5.2%
Total Investment	20.5%	7.2%
Foreign direct investment	2.7%	5.7%
Other investment	21.5%	9.2%
Total Consumption	2.7%	5.2%
Government Consumption	1.4%	6.7%
Private Consumption	2.8%	5.1%
Gross Domestic Product	3.0%	5.3%
Fiscal Indicators (Constant KR)		
Total Revenue, of which	11.2%	6.8%
Trade taxes	-2.1%	5.9%
Other taxes	31.2%	8.0%
Total Expenditures, of which	10.5%	7.1%
Current expenditures	6.5%	6.7%
Social Sectors	22.6%	6.7%
Others	1.3%	10.0%
Capital expenditures	17.3%	8.0%
Overall Balance / GDP	-4.5%	-5.2%
Balance of Payments (US\$)		
Merchandise Exports	12.7%	9.2%
Agricultural Exports	-6.4%	4.0%
Manufacturing Exports	89.4%	10.4%
Merchandise Imports	10.8%	10.7%
Service Receipts	6.6%	10.2%
Service Payments	9.1%	5.0%
Direct Investment Inflows	-5.2%	10.4%
Output by Sectors (Constant KR)		
Agriculture	-1.1%	5.1%
Manufacturing	12.0%	7.8%
Services	3.5%	3.4%

Macroeconomic Policies, Growth and Poverty Reduction Assessments

We have assessed the impact of three types of macroeconomic policies on Cambodia's growth and poverty alleviation: (a) fiscal expenditures on the social sectors and the monetarization of the fiscal deficit, (b) trade liberalization and its impact on fiscal revenue and social sector expenditures, and (c) changes in the competitiveness of agricultural exports to the Asian region. In general, our analysis suggests that the RGC can meet the targets set by SEDP-II by pursuing a mix of economic growth and pro-poor growth policies, but that careful attention needs to be given to the interaction of macroeconomic policies on the economy. Of the three areas of policy reform that we have addressed, trade reform is likely to have the greatest impact on overall poverty, while exchange rate adjustments are more important in promoting agricultural exports and reducing rural poverty. Fiscal policy reforms have a less dramatic effect than the other policies examined, but can have important long-term effects on human poverty alleviation. These results have a number of implications for the RGC's macroeconomic policies and structural adjustment program:

First, economic policies that promote growth without targeting inequality are unlikely to reduce the incidence of poverty to the target level established by the RGC. Economic growth is undoubtedly the single most important source of poverty reduction insofar as it improves the mean income

of the population. However, in Cambodia the redistribution effect of growth is negative for poverty since growth tends to promote incomes of the higher income groups more than those of lower income groups. Therefore, economic growth by itself is unlikely to yield a substantial reduction in poverty. Although we have not investigated the causes of increased inequality, there is abundant evidence that

structural adjustment programs can negatively affect the poor in the short run. For this reason, the RGC will need to adopt pro-poor policies that redress income inequality by targeting human resource development for poor people. These policies are already included in SEDP-II under priority public expenditures on health, education, agriculture and rural development.

Second, an increase in fiscal expenditures targeting social sector programs could weaken the poverty reduction strategy if they increase the fiscal deficit and undermines price stability. Apart from the direct negative effect on the poor because they tend to hold most

Table S.8
Poverty Changes in Cambodia under Base Forecast

	Target Growth with Neutral Policies			Target Growth with Pro-Poor Policies		
	2000	2005	Change	2000	2005	Change
Headcount Index:						
Cambodia, of which	36	33	-9%	36	31	-14%
Rural Areas	40	36	-10%	40	34	-14%
Urban Areas	21	20	-6%	21	18	-14%
Inequality (Gini Coefficient)						
Cambodia, of which	42	48	15%	42	42	0%
Rural Areas	33	38	17%	33	33	0%
Urban Areas	45	50	11%	45	45	0%

Source: Derived from baseline forecasts in Table 5.1 and elasticities in Table 1.2.

Table S.9
Multiplier Analysis of One-Time 10% Current Public Expenditure Increase

	Unit of Account	Multiplier (%)		
		Impact (Same year) a/	Interim (5 yrs)	Total (20 years)
Price Level	Index	2.7%	6.0%	4.0%
Real Effective Exchange Rate	Index	1.9%	4.2%	2.8%
Exports of goods	Nominal US\$	-0.6%	-4.7%	-5.3%
Exports of goods and nfs	Constant KR	1.4%	-0.3%	-2.1%
Imports of goods	Nominal US\$	0.6%	-1.5%	-6.2%
Imports of goods and nfs	Constant KR	0.9%	2.8%	-3.2%
Trade tax revenue	Constant KR	1.0%	2.7%	-3.5%
Gross capital formation	Constant KR	-0.5%	-3.2%	-7.5%
Consumption, of which	Constant KR	0.7%	-0.3%	-5.0%
Private	Constant KR	0.2%	-0.9%	-5.7%
Government	Constant KR	10.0%	7.7%	2.7%
Real GDP	Constant KR	0.3%	-2.3%	-5.6%
Poverty	Headcount	na	-1.7%	na

a/ One-period lag for prices, exchange rate and exports.

of their assets in cash, an acceleration of inflation increases the cost of producing tradable goods and leads to a deterioration in the international competitiveness of exports. The ensuing deterioration in the trade balance will lower output and employment, and ultimately work against efforts to reduce poverty. A reversal in the fiscal imbalance can occur through either reduced expenditures or increased taxes. However, a larger tax burden can have a negative effect on income distribution in a regressive tax system, while lower expenditures often target subsidies that directly impact on the poor. It is therefore more expedient to avoid a fiscal deficit expansion than to attempt to remedy the inflationary consequences of the expansion.

Third, a reversal of the current appreciation of the real cross-rate of the riel with other Asian currencies would improve the regional competitiveness of agricultural products and have a particularly positive effect on rural incomes. An improved terms-of-trade between tradables and non-tradables would improve income distribution because the agricultural sector employs most of the Cambodian labor force, and the rural sector contains most of the poor. Since most agricultural exports are directed to the Asian region, whose currencies have recently been devalued against the US dollar, Cambodia will need to ensure that domestic costs remain low if it is to maintain its exchange rate competitiveness in this region.

Finally, trade policy reforms need to become part of the mainstream poverty reduction strategy since trade in goods and services could drive economic growth and the reduction of poverty. Liberalization of trade, in particular, could have a large positive effect on poverty as resources are shifted from import-substitution industries to export-oriented

activities and unskilled labor-intensive exports that generate employment and income for the poor. However, the accompanying short-term reduction in government revenue from trade taxes could represent a disincentive to an outward-oriented government strategy. Without a compensating revenue expansion or expenditure cutback, the fiscal deficit could expand and generate a series of price and exchange rate adjustments that would undermine the RGC's growth and poverty reduction efforts.

Cambodia still lacks a trade strategy that is well-integrated into the RGC's mainstream growth and poverty reduction strategy. Part of the problem is that trade policy reforms have mainly responded to external requirements under specific commitments to CEPT-AFTA and the current negotiations with the WTO. The other problem is the lack of an integrated trade and exchange rate policy framework. Considerable progress has been made in viewing tariff reforms as part of a broader tax reform program that supports the transition from a large dependence on trade taxes for fiscal revenue to a broad tax revenue base. Less progress has been made in addressing how improvements in the country's exchange rate competitiveness can become a source of economic growth and generate fiscal revenue. If trade liberalization results in improved market operations and is accompanied by a more competitive exchange rate within the region, producers of agricultural products will benefit, rural incomes will improve, and poverty will be reduced.

Chapter 1: Poverty and the Poverty Reduction Strategy

A. Introduction

This document is the final report of a study conducted for the Asian Development Bank (ADB) on the impact of Cambodia's macroeconomic policies on poverty. At present, the Royal Government of Cambodia (RGC), with active support from the donor community, is formulating its strategy for sustainable economic growth and poverty reduction over the next five to ten years. As part of that process and with support from the ADB, the Government has submitted to the World Bank and IMF its interim Poverty Reduction Strategy Paper (I-PRSP) that responds to the findings of the Participatory Poverty Assessment (PPA), and is in the process finalizing the Second Socio-Economic Development Plan (SEDP-II). The distributional implications of SEDP-II will have a large influence on the sustainability of the Government's program.

While the major elements of the poverty reduction strategy are emerging, the specific relationship between macroeconomic policies and poverty reduction in Cambodia remains tenuous. The process requires further analysis to assist the ADB and the RGC in determining the likely outcomes of various policy options and their impact on poverty. To this end, the present study seeks to examine the poverty impact of macroeconomic policy options, and is intended to serve as background material for the ADB's policy dialogue with the RGC.

The study was undertaken by Montague Lord, ADB staff consultant, over a two-month period in March-April 2001. During that period, discussions were held with senior government officials on macroeconomic policy and poverty reduction options, and the documents and draft studies related to poverty issues in Cambodia were reviewed. Based on those interviews and documents, the present study seeks to evaluate the poverty reduction effects of economic policies in the context of a structural macroeconomic model of an open economy. The motivation for this approach is based on the need to consider poverty reduction policies that could be driven by fiscal revenue and expenditure initiatives, international trade, cross-border investments and international capital flows. This report contains the findings and conclusions of that analysis.

B. Poverty and Growth

Available data on the incidence of poverty in Cambodia are derived from assessments undertaken in 1993-94 and 1997 (World Bank, 1996; MOP, 1999a). A third assessment has been conducted with 1999 data but has not been released by the Government. According to the results of the first two assessments, the headcount index fell from 39 percent to 36 percent over the three to four year period, although the absolute number of people living below the poverty line remained virtually unchanged because of population

growth.² Almost 80 percent of the poor are located in rural areas and the remaining poor are distributed evenly between Phnom Penh and other urban areas. As a result, the incidence of rural poverty tends to dominate the national average.³

The dominance of the rural sector is apparent when we decompose the overall change in poverty into its rural, urban and migration components. The rural and urban components reflect the change in the rural and urban poverty incidence, weighted by their respective share of the total population. The migration component measures the movement from the rural area to urban areas, or visa-versa, and is weighted by the difference in the poverty incidence between the two areas.⁴ Table 1.1 demonstrates how the 2.9 percentage point decline in Cambodia's overall poverty was mainly attributed to the 2.4 percentage point decline in rural poverty. The decline in urban poverty contributed another 0.7 percentage points.

In calculating the migration component, the poverty assessments suggest that, contrary to expectations, there was a shift, albeit small, in population from urban areas having a relatively low incidence of poverty to rural areas having a high poverty incidence. Since the incidence of poverty in rural areas is considerably higher than that in urban areas, the marginal increase in the rural population share led to a 0.2 percentage point increase in Cambodia's overall poverty incidence.⁵

Table 1.1
Poverty in Cambodia, 1993/94 – 1997

	1993/94	1997	Change
Headcount Index:			
Cambodia, of which	39.0	36.1	-2.9
Rural Areas	43.1	40.1	-3.0
Urban Areas	24.2	20.9	-3.3
<i>Phnom Penh</i>	11.4	11.1	-0.3
<i>Other Urban</i>	36.6	29.9	-6.7
Decomposition of Poverty Change			
Cambodia, of which	-	-	-2.9
Rural Areas	-	-	-2.4
Urban Areas	-	-	-0.7
Migration	-	-	0.2
Inequality (Gini Coefficient)			
Cambodia, of which	38	42	4.0
Rural Areas	27	33	6.0
Urban Areas	42	45	3.4
<i>Phnom Penh</i>	39	46	7.0
<i>Other Urban</i>	44	44	0.0

Source: Headcount index from World Bank (1996) and MOP (1999); for decomposition of poverty change, see methodology explanation in text.

² There are several indices for measuring poverty, the most common of which are the headcount index, the poverty gap, and the more complex Sen and Foster, Greer and Thorbecke (FGT) indices. Data availability dictates that the measure used for quantitative poverty analyses and policy evaluations in Cambodia be the headcount index. The headcount index measure the proportion of the population whose income or consumption expenditures lies below the poverty line, which is defined as the cash equivalent of food consumption providing at least 2,100 calories of energy (plus 58 grams of protein) per person per day, plus a small allowance for non-food consumption to cover basic items like clothing and shelter. Data from household socioeconomic surveys conducted in 1993-94 and 1997 have been used to estimate the headcount index. This index and the aforementioned alternatives measure material deprivation and excludes dimensions of poverty reflected in low achievements in education and health, and vulnerability and exposure to risk addressed most recently by the World Bank's *World Development Report 2000/2001* (World Bank, 2001a).

³ Chapter 4 of the Second Socioeconomic Development Plan, 2001-2005 (RGC, 2001a) provides a detailed description of poverty in Cambodia in terms of quantitative measures. Other dimensions are covered in the Participatory Poverty Assessment (PPA).

⁴ For a derivation of the equation for the change in poverty in terms of these three components, see Weiss (2001) and Anand and Kanbur (1985).

⁵ The changes in the rural population share can be derived from the reported headcount index for Cambodia, denoted P , and those of the rural, P^r , and urban, P^u , areas from the identity $P = \alpha P^r + (1-\alpha)P^u$,

The RGC's emphasis on economic growth as a strategy to alleviate poverty is well founded on the large and growing empirical evidence that sustainable economic growth rates successfully lower poverty levels. Recent studies undertaken for a cross-section of countries by Dollar and Kraay (2000), Chen and Ravallion (2000), Gallup et al. (1998) and Lundberg and Squire (2000) have demonstrated that, on average, economic growth at the national level leads to a proportional growth in the incomes of the poor within those countries. The effectiveness of economic growth as an engine of poverty reduction, however, varies greatly across countries. We therefore need to determine the poverty reduction responsiveness to economic growth in a country such as Cambodia to identify the kinds of economic policies that will be most conducive to reducing poverty.

The nature of this response can be ascertained from the effect on the rate of poverty reduction of the distribution-corrected rate of growth in average income.⁶ This effect can be measured, first, by calculating the overall responsiveness of poverty to changes in real per capita income and, second, by decomposing the effect into that portion associated with economic growth and that portion associated with income inequality. The first calculation yields the 'elasticity of poverty', and is measured as the percentage change in absolute poverty incidence relative to the growth rate of income. Notationally, the poverty elasticity is $\theta = p/y$, where θ denotes the elasticity of poverty, p is the percentage change in poverty incidence and y is the growth rate of real per capita income.

For Cambodia the poverty elasticities in the rural and urban areas reported in Table 1.2 are similar because the relatively smaller decline in rural poverty was associated with a lower growth in per capita income than in the urban areas. Within urban areas, however, the poverty elasticity for Phnom Penh is much lower than in other areas since the decline in poverty in Phnom Penh was smaller despite similar economic growth rates in urban areas.

The -0.6 poverty elasticity of Cambodia is lower than those calculated for most other countries in the region by Warr (2000) and Kakwani and Pernia (2000) (Table 1.3). Nevertheless, Cambodia's poverty elasticity is nearly the same as those of Lao PDR and the Philippines. The fact that those countries having the least open economies (Cambodia, Lao PDR and the Philippines) have the lowest poverty elasticities, and those countries with the most open economies (Taipei, China, Malaysia, and Thailand) have the highest poverty elasticities suggests that trade may be causally related to poverty reduction, an issue that is addressed in chapters 4 and 5..

where α represents the rural population share. Hence, the rural population share is given by $\alpha = (P - P^u)/(P^r - P^u)$ and the urban population share is $(1-\alpha)$.

⁶ While the survey by Rodriguez C. (2000) finds little evidence on the role of inequality in determining economic growth, there is strong evidence that inequality can be harmful to long run economic growth by undermining economic reforms.

Since the primary income of the poor depends on the level and distribution of aggregate income, we need to differentiate between the effects on poverty associated with changes in aggregate incomes and those associated with changes in the distribution of that income. Kakwani (2000) has shown that

changes in the incidence of poverty can be expressed as a simple additive function of (a) the effect associated with overall economic growth when the distribution of income does not change, and (b) the effect associated with changes in the distribution of income when overall growth does not change. The change in the absolute poverty incidence relative to the change in real per capita GDP growth, denoted θ , can therefore be decomposed into the pure economic growth component, θ_g , and the change in inequality component, θ_i :⁷

$$\theta = \theta_g + \theta_i \quad \dots(1.1)$$

such that

$$dP/P = \theta_g dY/Y + \theta_i dG/G \quad \dots(1.2)$$

where P is the incidence of poverty, Y is real per capita income, and G is the Gini coefficient. The economic growth component θ_g in (1.1) and (1.2) has been derived by Ravallion (2000) from the following representation of the rate of poverty change:

$$p = \theta_g(1-I)y \quad \dots(1.3)$$

where p is the percentage change in poverty, I is an index of inequality (between zero and one) at the beginning of a period of time, over which the average income growth rate is y . From (1.3) we can derive the growth elasticity as $\theta_g = p/[(1-I)y]$ and the inequality elasticity as the difference between the poverty elasticity and the growth elasticity using equation (1.1).⁸

The growth and inequality elasticities for Cambodia are presented in Table 1.2. The growth elasticity of -0.9 is about one-third of that calculated by a cross-section of

Table 1.2
Growth and Inequality Elasticities of Poverty in Cambodia

	Poverty Elasticity	Explained by		Pro-Poor Growth Index
		Growth Elasticity	Inequality Elasticity	
Cambodia	-0.61	-0.94	0.32	0.70
Rural Areas	-0.62	-0.86	0.23	0.73
Urban Areas	-0.58	-1.25	0.68	0.58
Phnom Penh	-0.14	-0.23	0.09	0.61
Other Urban	-0.98	-1.75	0.77	0.56

⁷ Datt and Ravallion (1992) provide a similar decomposition with an additional term that is excluded by Kakwani (2000) for computational ease.

⁸ We can also derive the inequality elasticity from equations (1.2) and (1.3). Letting i represent the percentage change in the index of inequality I , we obtain the expression for the inequality elasticity as $\theta_i = (p - \theta_g y)/i$. Because of differences methodologies between the two poverty assessments, this approach yields slightly different inequality elasticities.

countries by Easterly (2000), and it is also below the estimates reported by Kakwani and Pernia for Lao PDR, Thailand and Korea. The inequality elasticity, however, is only one-half of that reported in the cross-country estimates by Easterly and considerably below the individual country estimates reported by Kakwani and Pernia. In Cambodia's rural areas, poverty could have been reduced by 9.5 percent rather than 7 percent had inequality not increased. In urban areas, poverty could have been reduced by 23 percent instead of 14 percent had there been no increase in inequality. Despite the offsetting effects from the expansion in inequality, Cambodia's low inequality elasticity in both rural and urban areas relative to those of other countries for which estimates are available allowed the poor to benefit nearly as much from economic growth as the non-poor.

The magnitude of these growth and inequality effects allows us to determine the extent to which economic policies have favored the poor. For this purpose, Kakwani and Pernia (2000) have developed a pro-poor growth index to measure the degree to which policies have favored the poor. This pro-poor growth index, denoted ϕ , is equal to the ratio of the growth elasticity, θ , to the pure economic growth effect, θ_g , that is:

$$\phi = \theta/\theta_g \quad \dots(1.4)$$

Table 1.3
Comparative Poverty
Elasticities

	Growth Elasticity
Cambodia	-0.61
Lao PDR	-0.70 a/
Philippines	-0.73 b/
India	-0.92 b/
Indonesia	-1.38 b/
Thailand	-2.04 b/
Malaysia	-2.06 b/
Taipei, China	-3.82 b/

a/ Kakwani and Pernia (2000).

b/ Warr (2001).

Growth is strongly pro-poor when inequality declines during a period of growth ($\phi > 1$); growth is moderately pro-poor when inequality rises but poverty still declines due to economic growth ($0 < \phi < 1$); and growth is anti-poor when inequality rises and economic growth increases poverty ($\phi < 1$). For Cambodia, the last column of Table 1.2 shows that the pro-poor growth index has been 0.7 in the rural areas and 0.6 in the urban areas. These results suggest that economic policies have been moderately pro-poor in both rural and urban areas. Despite the lower growth elasticities of Cambodia relative to Lao PDR, economic policies have been more pro-poor than in that country. In comparison to Thailand and Korea, however, Cambodia's economic policies have been considerably less pro-poor.

C. Key Elements of the Poverty Reduction Strategy

The Government's proposed strategy for poverty reduction is contained in the interim Poverty Reduction Strategy Paper (I-PRSP) (RGC, 2000), as well as the draft Second Socioeconomic Development Plan (SEDP-II) (RGC, 2001a). The I-PRSP fundamental objectives of achieving opportunities, empowerment and security are based on those laid out by the World Development Report 2000/2001 (World Bank, 2000), which shifts the World Bank's emphasis on democracy, sustainability and equity and the movement away from the 'Washington consensus' (Williamson, 1993) as preconditions to reduce poverty, and towards Amartya Sen's (1997a, 1997b, 1999) emphasis on social justice as a means of helping the poor.

Since economic growth is the single most important factor influencing poverty and since stability is believed to be essential for a sustainable growth rate, macroeconomic policy is viewed as a key component of the poverty reduction strategy. Macroeconomic stability, however, does not necessarily generate the type of growth that is associated with progressive distributional changes. For improvements in the distribution of income and assets, the World Bank's PRSP sourcebook (World Bank, 2001a) suggests the inclusion of additional economic policies such as pro-poor public expenditure and measures to increase access to financial markets. Moreover, the poverty reduction strategy needs to include structural measures in the form of trade liberalization, banking sector reform, improved governance and regulatory reform. The inclusion of these macroeconomic policies and structural measures form an integral part in the design of I-PRSP-based programs supported by the International Monetary Fund's Poverty Reduction and Growth Facility (PRGF).

Cambodia's I-PRSP has three broad goals: (1) a long-term, sustainable economic growth of 6 to 7 percent a year, (2) an equitable distribution of income at the national level, in the urban and rural areas and between genders, and (3) a sustainable utilization of natural resources and environmental protection. While growth is to be driven by macroeconomic stability, structural adjustments to shift resources to productive sectors, and the integration of the country into the global economy, equity is to be achieved through government supported improvements in education, health, rural development and agriculture. The growth objective will be bolstered by a broad set of policy targets that encompass macroeconomic stability, private sector development, development of infrastructure and power facilities, natural resource management, rural development and decentralization, land reforms, improved access to micro-finance for the poor, and development of the agricultural sector. Apart from the immediate impact of rural development programs on the rural poor, the strategy also includes support for the industrial and service sectors to ensure a sustainable poverty reduction.

In macroeconomic policy, the strategy relies on prudent macroeconomic management of a market-driven open economy. Economic growth of 6-7 percent is to be achieved with inflation under 4 percent, a reduced external current account deficit, and prudent management of external debt. To reach these objectives, the Government will pursue fiscal reforms aimed at increasing revenue and improving the pattern and efficiency of spending. Specific fiscal reforms shown in Box 1.1 include broadening the tax base and improving tax administration, reviewing the mechanisms used for timber royalties, and lowering the number of tax exemptions under the Law of Investment and under tariff concessions. Together these reforms aim to develop a tax policy framework that will raise revenues, improve equity and remove distortions that dampen private investment initiatives.

On the fiscal expenditure side, priority expenditures will be established on the basis of the Public Investment Program (PIP), which should ensure that adequate funding is provided for health, education, rural development and agriculture under both the Public Expenditure Review and the Priority Action Plan. Defense and security expenditures are to be gradually reduced, and public investment in physical infrastructure and social

sectors expanded. In order to lower the country's reliance on foreign capital, a greater effort will be made to increase domestic savings, in part, by developing the financial sector, and in particular the banking system.

For the exchange rate, the strategy is the maintenance of a market-based exchange rate policy and liberal exchange system to promote Cambodia's integration into the region and global economy by maintaining an outward-looking, market-based economy. Trade reform will continue in the context of ASEAN Free Trade Area (AFTA) and World Trade Organization (WTO). Accession to the WTO would help to ensure that Cambodia develops international standards in trade, foreign investment and the international finance. The RGC nevertheless recognizes that integration into the region and global economy will not necessarily reduce poverty, since the benefits of globalization have been unevenly distributed. For this reason, the Government's strategy includes the provision of training, skills improvements, access to credit and assistance to vulnerable segments of the population.

Since foreign direct investment (FDI) forms an important part of the process of globalization, the RGC will seek to improve the investment climate that is conducive to stability, security, transparency, accountability and predictability. As capital inflows into the garment industry have slowed, the RGC intends to focus on the development of labor-intensive industries in which Cambodia has a comparative advantage. To support this diversification and in addition to ensuring a favorable investment climate, the Government intends to focus on the development of infrastructure that will support domestic and foreign investment in new sectors. Of particular interest to the Government is the development of a growth corridor linking Phnom Penh as a financial and industrial center to the tourism industry in Siem Reap, export processing zones in Sihanoukville, and agro-business in Kompong Cham. It also intends to promote special development zones in border areas. There are a number of existing mechanisms that could be adopted for this purpose, including various ASEAN economic initiatives such as the ASEAN Industrial Cooperation Scheme (AICO) and the ASEAN Investment Area (AIA).

The Poverty Reduction Strategy Paper (PRSP) serves as the basis for concessional lending and for debt relief under the enhanced Heavily Indebted Poor Countries (HIPC) Initiative. As in other countries, the full PRSP for Cambodia is expected to integrate a costed poverty reduction strategy into a consistent macroeconomic framework. According to the International Monetary Fund's review of the PRSP process (IMF, 2000aa), this requirement presents a considerable challenge to countries like Cambodia since the linkages between macroeconomic policies and poverty reduction are complex, and available macroeconomic and poverty data are often unreliable. Moreover, costing the PRSP is more difficult than originally envisaged. Input costs, especially those related to institutional reforms and improved governance, are difficult to estimate, and the value of the resulting benefits are difficult to determine. For example, the performance review of the SEDP-I concluded that, "Lack of data makes it difficult to assess actual achievements relative to planned achievements in the field of social development, or to identify reasons for under-achievements. Likewise, it is not possible to identify clearly the impact of the activities undertaken on the poor. However, descriptive information

Box 1.1
I-PRSP Policy Matrix on Macroeconomic and Trade Policies, 2000-02

Policy Objectives	Strategies and Measures	Implementation
FISCAL POLICIES		
(i) Revenue mobilization		
a. Broaden revenue base	Improve VAT administration and extend VAT coverage.	2000-02
	Re-institute pre-shipment inspection.	August-00
	Review mechanism for timber royalties, in the context of budget formulation.	2000-02
b. Reduce tax and duty exemptions.	Revise Law on Investment to rationalize tax and duty exemptions.	March-01
	Grant no new ad hoc tax or import duty exemptions.	2000-02
c. Strengthen revenue administration and governance	Strengthen customs administration.	2000-02
	Fully transfer non-tax revenue from line ministries to the Treasury.	2000-02
	Reinforce procedures to collect tax and non-tax arrears	2000-01
(ii) Expenditure Management		
a. Expenditure priorities	Ensure strict implementation of annual Public Investment Program consistent with priorities and link more closely to recurrent expenditure, through such mechanisms as MTEF.	2000-02
	Provide adequate funding and meet budgetary targets for spending on basic health and education and rural development in line with Public Expenditure Review.	2000-02
	Fully implement the Priority Action Program (PAP) for Health and Education and expand its coverage to Agriculture and Rural Development.	2000-02
b. Enhance the effectiveness of expenditure management.	Strengthen budgetary procedures to strictly limit spending decisions outside the budget framework.	2000-02
(ii) Expenditure rationalization	The Government will fully operationalize the Budget Strategy and Enforcement Center at MEF to streamline the procedures to screen the bids for funding and facilitate cash disbursements to key social sectors.	2000-02
	Establish responsibility for performance at the level of spending units in parallel with strengthening technical, financial, managerial capabilities.	2000-02
EXTERNAL SECTOR POLICIES	Maintain market based exchange rate system.	Ongoing
	Reduce tariff rates and simplify the tariff structure	2000-02
	Strengthen the debt management unit and refrain from commercial borrowing on non-concessional terms.	2000-02
	Continue discussions with external creditors with a view toward concluding bilateral rescheduling agreements.	2000-01
	Formulate procedures to promote market access for Cambodian products in EU countries.	2000-02
	Encourage the establishment of business and producer associations.	2000-02
	Adopt the Export Processing Zone Law to promote international trade.	2000-01

ongoing processes rather than concrete outcomes.” (RGC, 2001a).

For these reasons, the IMF’s review of the the PRSP process (IMF, 2000) finds that it is difficult to determine whether a poverty reduction strategy such as that of Cambodia is consistent with the Government’s macroeconomic framework, and whether the framework should be changed to accommodate the poverty reduction strategy. Without adequate knowledge of the relationship between fiscal expenditures and economy-wide outcomes, for example, it is difficult to evaluate the impact of proposed strategies. Understanding this relationship requires further work on the following three areas: (1) The linkages between economic growth, pro-poor growth and poverty alleviation, (2) how macroeconomic policies translate into poverty reduction, and (3) how trade policy reforms impact on poverty. We address each of these areas sequentially in the chapters that follow.

D. Second Socioeconomic Development Plan

The full PRSP will emerge from the Second Socio-economic Development Plan, 2001-2005 (SEDP-II). These two documents will be implemented in a single strategic framework for the Government. Like the First Socioeconomic Development Plan, 1996-2000 (SEDP-I), the primary development goal of SEDP-II is poverty reduction. The development objectives that support the primary goal are sustained growth with equity, social and cultural development, and sustainable management and use of natural resources and the environment.

Sustained economic growth with equity is to be achieved with a real GDP average annual growth rate of 6.1 percent, with sector growth of 3.5 percent for agriculture, 7 percent for industry, and 8 percent for services. The poverty headcount index is to be reduced from 36 to around 31 percent (Table 1.4). Based on the growth elasticity estimates in Table 1.2, the target is almost tenable with neutral poverty-oriented policies and fully tenable with pro-poor policies. As Table 1.5 demonstrates, neutral poverty-oriented policies resulting in a 4 percentage point poverty reduction would be driven by a 5 percent decline in the incidence of rural poverty and a 13 percent decline in urban poverty, and supported by rural to urban migration because of economic growth differentials between the agricultural sector, on the one hand, and industry and services sector on the other. Inequality, however, would rise significantly since economic growth is normally accompanied by greater income inequality.⁹

Table 1.4
Target Growth and Poverty Reduction of SEDP-II
(Billion riels, 1993 prices, and percentages)

	2000	2005	Percent Change
Agriculture	3,106	3,688	4%
Industry	1,788	2,508	7%
Services	3,011	4,431	8%
GDP	7,904	10,628	6%
Headcount Index	36% (1999)	31%	5%

Source: RGC, 2001.

Note: Percentage changes for GDP by sector are annual basis.

⁹ There is ample empirical evidence to suggest that income distribution is roughly orthogonal to economic growth. See, for example, Bruno, Ravallion and Squire (1995) and references therein.

With pro-poor policies maintaining the existing distribution of income, it would be possible to lower the overall incidence of poverty from 36 to 30 percent between 2000 and 2005. As expected, urban inequality growth would need to be neutralized more than that of rural inequality. These estimates assume that the population continues to grow by 2.5 percent per year.

In light of the recent slowdown in global trade, cross border investments and international finance, it is of course possible that the RGC's ambitious economic growth rate will be unattainable even with supply expansions. In such a case, pro-poor growth policies that generate progressive distributional changes could be adopted to affect the distributional patterns and the sectoral composition of growth. The SEDP-II points to three areas for generating progressive distributional changes:

Table 1.5
Poverty Changes in Cambodia under SEDP-II with Poverty-Neutral versus Pro-Poor Policies

	Target Growth with Neutral Policies			Target Growth with Pro-Poor Policies		
	2000	2005	Change	2000	2005	Change
Real GDP Per Capita Index:						
Cambodia, of which	100	119	19%	100	119	19%
Rural Areas	100	108	8%	100	108	8%
Urban Areas	100	122	22%	100	122	22%
Headcount Index:						
Cambodia, of which	36	32	-12%	36	30	-18%
Rural Areas	40	38	-5%	40	37	-7%
Urban Areas	21	18	-13%	21	15	-27%
Inequality (Gini Coefficient)						
Cambodia, of which	42	50	19%	42	42	0%
Rural Areas	33	36	8%	33	33	0%
Urban Areas	45	55	22%	45	45	0%

Source: Derived from SEDP-II target growth rates and growth elasticities in Table 1.2.

Table 1.6
Growth and Inequality Trade-Off Need for 31% Poverty Incidence

Real GDP Growth (Annual)	Inequality (Gini coef) in 2005
6.0	50
5.5	47
5.0	43
4.5	40
4.0	37
3.5	33
3.0	30
2.5	27
2.0	24
1.5	21
1.0	18
0.5	16
0.0	13

Source: Derived from Tables 2.2 and 2.5.

- ⇒ Meso-policies to expand public expenditures on health and education, and shift spending from defense to agricultural and rural development programs.
- ⇒ Macroeconomic policies to make agricultural and labor-intensive manufacturing exports more competitive by promoting de-dollarization of the economy through financial sector reforms aimed at creating riel-denominated assets, and increasing the international competitiveness of exports.
- ⇒ Structural adjustment policies to reform credit schemes and ensure that credit reaches small-scale enterprises, liberalize trade and thereby lower the effective rates of protection and promote export-oriented activities, as well as land reform, price liberalization and privatization of agricultural activities.

Table 1.6 shows the magnitude of equity improvements through pro-poor economic policies needed for the incidence of poverty to

fall to 31 percent under different real GDP growth rates. As mentioned earlier, the anticipated growth of 6 percent in SEPD-II is likely to be accompanied by increased inequality. Assuming that the estimated growth and inequality elasticities in Table 1.2 hold over the forecast period, then a slowdown in economic growth would need to be offset by pro-poor policies. With the annual economic growth rate reduced to 4 percent, for example, the distribution of income (measured by the Gini coefficient) would need to improve to 37 from its level of 42 in 2000 for poverty to decrease from 36 to 31 percent. With annual economic growth rates of 3 percent, pro-poor policies would need to reduce inequality from 42 in 2000 to 30 in 2005. While these estimates are subject to a number of limitations arising from data limitations and inconsistencies between past poverty assessments, they do point to the need to consider both broad-based macroeconomic policies and structural adjustment initiatives, and policies that focus on redistribution policies to improve the primary incomes of the poor.

Chapter 2: Macroeconomic Policies and Transmissions

There is considerable overlap between macroeconomic and structural adjustment policies in Cambodia. Macroeconomic policies are concerned with short-run corrections of internal and external balances in the economy through public revenue and expenditure policies, as well as switching policies in the form of exchange rate reforms, and to a lesser extent, structural policies in the form of trade and financial policy reforms. In contrast, structural adjustment policies emphasize trade and financial policy reforms, but also address stabilization policies to correct imbalances. Since primary incomes of the poor depend on aggregate income and their share of that income, the effect of these policies on the poor are determined by both overall economic growth and income distribution. In this study, we consider both stabilization and structural adjustment policies and their effects on primary incomes of the poor.

Meso-policies are equally important to the poor in Cambodia through their affect on secondary incomes that individuals received after taxation and benefits such as government transfers and public goods. These policies affect the poor through public expenditure provisions of goods and services supplied for free or at below-cost. As such, meso-policies are reflected in the extent to which government expenditures are directed at social sectors, and the proportion of those social sector expenditures directed at priority sectors for the poor. While these policies are examined in some detail in Chapter 3, it is important to emphasize that the focus of this study is on the transmission of economic policies on primary incomes of the poor with a view to examining how macro-adjustment policies affect the poor.

A. Pro-Poor Macro Policies in the Poverty Reduction Strategy

Pro-poor policies proposed by the SEDP-II and the eventual ones proposed by the full Poverty Reduction Strategy Paper (PRSP) aim to produce systematically greater positive changes in the incomes of the poor than in those of the mean income of the population of Cambodia. These pro-poor policies are to work through the growth effect on poverty discussed in the previous chapter, and are to have a small inequality effect. In contrast, the growth policies proposed by SEDP-II aim to produce proportional changes in the mean income of the poor and the nation, and will affect poverty through both positive growth and negative inequality effects.

A core set of policies comprising macroeconomic stability, fiscal discipline and openness to trade are believed to be pro-growth, raising the mean income of the poor above the national average and improving the distribution of income. Moreover, these policies tend to work together more effectively than they do individually (Dollar and Kraay, 2000). While there is clear empirical evidence supporting the benefits of low inflation on economic growth, especially through its effect on foreign and domestic investment, there

is also evidence that price stability can benefit the poor more than the non-poor.¹⁰ The poor hold financial assets mainly in the form of cash, and they are less able to protect the value of their holdings under high rates of inflation than are the non-poor.

Beyond certain thresholds, stabilization policies can have a negative effect on output growth. Stabilization policies through demand restraints on public expenditures or credit expansion can reduce real income and employment, and lower the positive effect of growth on poverty reduction. These demand restraints, however, are likely to impact on poverty through their effect on growth and have a small distributional effect. Any distributional effect is more likely to affect the urban poor more than those in rural areas, and the magnitude of that effect will vary with the type of expenditures affected by the demand restraints.

Trade is one of the major driving forces behind the projected growth of the economy under the SEDP-II. The impact of growth on poverty will largely depend on the sectoral composition of the trade expansion. Since most of the poor live in rural areas, agricultural export growth could contribute greatly to reducing poverty because it would generate income for poor farmers and increases the demand for the types of goods produced by the poor. Garment and service exports, however, are expected to lead export growth, and logs and sawn timber exports are projected to continue to grow, notwithstanding improved resource management and a consequent drop in illegal log exports. These types of exports will have little direct impact on rural output.

Nevertheless, as in other countries, trade openness in Cambodia could benefit the poor by increasing mean income of the nation. Dollar and Kaay (2000) have found that trade openness for a cross-section of countries increases mean incomes and benefits the poor in the same proportion as the national, with no negative effect from increased inequality. Although these results may generally apply across countries, the effect of openness on poverty in Cambodia will largely depend on the composition of trade growth and the impact of switching policies affecting relative prices of tradables in terms of the factor intensity in the tradables and nontradables sectors, the degree of poverty in the two sectors and the extent of factor mobility between them.

B. Fiscal Policy and Exchange Rate Policy Transmissions

The Cambodian economy has undergone large and fundamental reforms in its transition from a centrally planned economy since the signing of the Paris Peace Accord in 1991. The reforms were interrupted in 1997 by both internal conflict and the Asian Crisis, but have since then gained momentum. Macroeconomic stability and the liberalization of markets have supported the economy's favorable growth rates, although the economy remains one of the poorest ones of the world, with per capita income in 2000 estimated at \$266. For this reason, poverty reduction was the central objective of SEDP-I and it

¹⁰ For evidence on the negative relationship between inflation and growth, see Fischer (1993), Bruno and Easterly (1998), Ghosh and Phillips (1997), and Sarel (1996). There is, however, conflicting evidence on whether income distribution is affected by the rate of inflation. See Stewart (1995: 25) and references therein.

continues to be the central one under SEDP-II through policies aimed at establishing the fundamental conditions needed for internal and external balance, and at removing distortions through economic reforms encompassing trade liberalization, fiscal reform, privatization and deregulation.

Economic growth has been largely driven by the industrial sector, especially the garment industry (Table 2.1). The agricultural sector, where most of the poor are located, has only experienced a modest growth and thereby prevented any major reduction in poverty, while the service sector has been nearly stagnant relative to the performance of other countries in the region.

Table 2.1
Cambodia: Value Added by Sector, 1993-99

	Share		Average Annual Growth, 1994-99
	1993	1999	
Agriculture	42%	42%	4%
Industry	13%	20%	13%
Services	45%	38%	2%
Total	100%	100%	5%

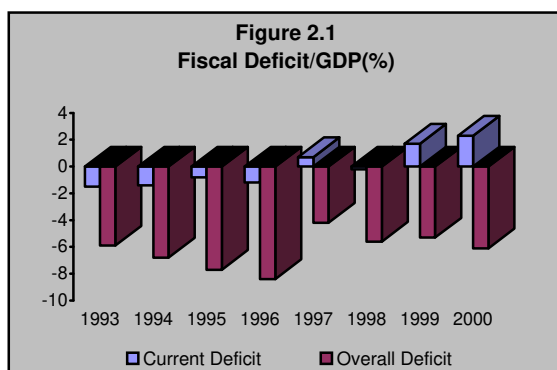
Source: Derived from National Institute of Statistics.

Internal balance in output and inflation has been achieved through fiscal restraints. The fiscal deficit was reduced from over 8 percent of GDP in 1996 to under 6 percent in 1999. However, Cambodia has one of the lowest ratios of fiscal revenue to GDP in the world, which prevents the Government from effectively providing public infrastructure and social services (IMF, 2000). Fiscal reforms since 1998 have focus on new revenue

measures, including the introduction of a value added tax (VAT). Public revenue, nevertheless, continues to rely heavily on trade taxes because of a weak domestic revenue base. With commitments to tariff reforms since Cambodia's accession to ASEAN in 1999 and plans for accession to the WTO, the Government will need to find new sources of revenue. On the expenditure side, reforms have been directed at shifting spending from defense and security to social services.

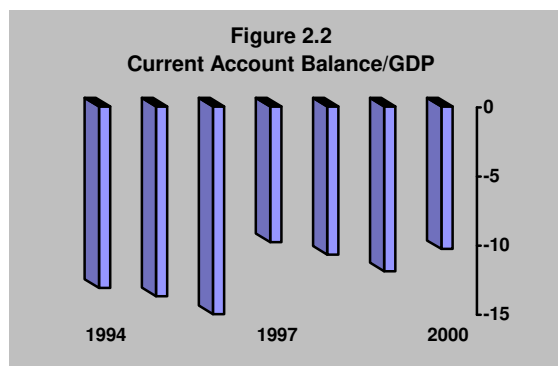
The Government nevertheless continues to rely heavily on external grants and concessional loans to finance its public investment program.

The earlier fiscal deficits and large liquidity expansion to finance those deficits brought annual inflation rates to around 40 percent in the early 1990s. With fiscal austerity, inflation decelerated to 7 percent in 1996-97, and it is estimated at 2.5 percent in 2000. The exchange rate has been stable due to extensive dollarization. But dollarization has impaired the ability of the National Bank of Cambodia (NBC) to conduct an independent monetary policy, and it has limited the relevance of the riel/US dollar exchange rate as a variable affecting international competitiveness. Under SEDP-II, the Government intends to promote the de-dollarization of the economy through financial sector reform aimed at creating riel-denominated assets (RGC, 2001a). But, at present, monetary policy is limited to preventing fiscal deficit financing that could undermine price stability and investor confidence. Moreover, Cambodia's deepening ties with ASEAN member



countries, which for the most part maintain floating exchange rates could undermine Cambodia's competitiveness in those markets as partner trading countries devalue their currencies against the U.S. dollar.

External trade has been characterized by large trade imbalance in both goods and services. In 1994 the value of merchandise imports was over half as large as that of exports, and service payments were over three times as much as service receipts. Exports of goods and services have grown faster than imports, averaging 5 percent between 1996 and 1999, while the value of imports has remained virtually unchanged. Nevertheless, the



continued large trade imbalance has made Cambodia heavily dependent on multilateral disbursements and foreign direct investment (FDI). Internal conflict and the Asian Crisis in 1997 underscored the vulnerability of the external balance. These two events brought about sharp contractions in multilateral disbursements and foreign direct investment, and caused the overall balance of payments surplus to fall from \$52 million in 1996 to \$24 million in 1997 and \$12 million in 1998.

Since then, the overall balance has improved, despite a continued widening of the current account imbalance during 1998-2000.

Notwithstanding these difficulties, there is no doubt that Cambodia has benefited from its macroeconomic policies. Inflation has been low, financial discipline has been maintained, and the external environment has been stable. The RGC has successfully moved to an export-led strategy based on a series of trade policy reforms instituted since 1999 that aim to liberalize trade through three types of measures. First, import tariffs are being reduced; second, quantitative import measures were eliminated in 1994 and were replaced with tariffs; and third, exports have been promoted through the elimination of export controls except that banning the export of logs. Under these conditions, FDI inflows, especially those into the garment industry, have bolstered the country's growth prospects, and trade conditions have been considerably improved.

The efficiency gains from further trade liberalization, however, have to be weighed against the Government's strategy for achieving internal balance, largely through fiscal austerity and the maintenance of fiscal revenues. While total tax revenue since the start of the reforms has fallen from an already low of 2 percent to 1 percent of GDP, non-tax revenue has contracted from 0.8 percent to only 0.3 percent of GDP. Tax revenue will therefore need to support an increasingly larger portion of fiscal expenditures, and since taxes on international trade currently represent about one-third of the Government's total tax revenue, the fiscal revenue implications of such an initiative are especially important to the Government's ability to provide both public infrastructure that will promote growth and the primary incomes of the poor, and social services that will improve the conditions of the poor in the medium to long term.

C. Measuring Macroeconomic Policy Effects on Growth and Poverty

Building on existing methodologies, we estimate in this study Cambodia's macroeconomic policy effects on poverty reduction in three stages. First, in Chapter 1 we calculated the growth and inequality elasticities of poverty. Second, in Chapters 3 and 4 we examine the individual effects of key macroeconomic policies on the expenditure side of the economy. Finally, in Chapter 5 we measure the impact of relative price changes between tradables and non-tradables on agriculture, industry and services, and link these sectors to rural and urban incomes.

The modeling framework follows the integrated quantitative macroeconomic framework (IMMPA) currently being designed by the World Bank for the analysis of the impact of adjustment policies and external shocks on poverty and income distribution in both low- and middle-income developing countries (Agénor, Izquierdo, and Fofack, 2001).¹¹ The IMMPA data requirements are, however, quite demanding since the modeling framework emphasizes the role of labor market segmentation, and the role of informal employment in the transmission of policy and exogenous shocks to the poor. But the richness of detail allows the approach to account for the impact of different components of government expenditure on infrastructure and social services (health and education) on the production process and the accumulation of physical and human capital by the private sector. Because of its integrated treatment of the real and financial sectors, policymakers can use the framework to assess the impact of structural reforms on relative prices and output, and the effect of stabilization policies on the economy. Most importantly for our concerns, the modeling framework distinguishes between rural and urban sectors, as well as migration dynamics driven by relative wages, and it therefore considers poverty in urban and rural areas in relation to output and employment in the productive sectors.

This approach requires a social accounting matrix (SAM) to evaluate the impact that the country's economic and social policies have on poverty and welfare levels.¹² The process of implementation usually consists of the following components: (a) creation of a data bank and publication of social statistics; (b) construction of a social accounting matrix (SAM) that integrates economic and social data; and (c) design of a general equilibrium model (GEM) based on the SAM, which is then used to evaluate the degree of effectiveness of the country's economic and social policies, as well as their impact on poverty levels.¹³

¹¹ The IMMPA Modeling Framework of the World Bank is located on the following Web page: http://www1.worldbank.org/wbiep/macro-program/mem/right_IMMPA_modeling_framework/index_immpa_modeling_framework.htm.

¹² An example of a SAM is that maintained by the Indonesian Central Bureau of Statistics. It is highly disaggregated into 106 categories (including 23 factors of production, 12 institutions, and 22 production sectors, and is available for 1993. For an application of this SAM to the poverty impact of the Asian crisis in Indonesia, see Thorbecke (2000).

¹³ A typical project to cover these components in a country like Cambodia requires about 45 months of international consultants and 20 months of local consultants.

An alternative approach being developed by the IMMPA project at the World Bank is more compatible with data availability in Cambodia (Devarajan *et al.* 2000). The approach links existing models together, and therefore takes the modular approach adopted in the present study for Cambodia. It uses the Financial Programming Model (FPM) of the International Monetary Fund (IMF) to generate a consistent set of national accounts linking the fiscal, balance of payments and monetary accounts. The FPM used by the IMF is an accounting framework for an open economy with fixed exchange rates, and it relies on the monetary approach to the balance of payments.¹⁴ For Cambodia we instead need to consider economic policies where the exchange rate adjusts endogenously. This approach is provided by the Mundell-Fleming macroeconomic model, which assumes that the price level is fixed so that GDP is determined by aggregate demand.

Using either the FPM or Mundell-Fleming structural macroeconomic model developed here for Cambodia, the next step is to input the results into an Excel-based GEM model called the '1-2-3 Model' that characterizes one (1) country with two (2) producing sectors and three (3) goods. The advantage of this approach, apart from its easy of use by practical economists, is that the relative price calculations derived from the macromodels can be used to calculate the long-run (about 5-year) growth impact on poverty.

The 1-2-3 model is one way of examining the relative-price implications of a set of macroeconomic policies. Another approach is to build into the Mundell-Fleming model the real sectors of the economy in terms of agricultural (primary), industrial (secondary) and service (tertiary) sectors, and link these sectors to rural and urban incomes, and associated poverty levels. The data requirements are not demanding, so the approach can easily be applied to countries where data limitations would normally inhibit the application of economy-wide models. Annex A derives the model and presents the equation estimates for the behavioral components of the model, while Annex B presents the model in its Eviews format.

¹⁴ A description of the model is available at http://www1.worldbank.org/wbiep/macro-program/mem/right_e-book/chapters/part2/ch9_3.htm.

Chapter 3: Fiscal Revenue and Expenditure Policies

A. Public Policy Framework

The RGC is committed to the formulation and implementation of a pro-poor fiscal policy strategy to establish a favorable environment for promoting economic growth with an equitable distribution of resources. This strategy supports I-PRSP measures to reduce poverty by accelerating economic growth, improving the distribution of income, and promoting social development. Economic policies aim to encourage macroeconomic stability, shift resources to more efficient economic and social sectors, and integrate the Cambodian economy into the regional and global economies. The Government recognizes that the benefits of growth for the poor can be eroded if the distribution of income worsens, and it has therefore adopted measures that target direct interventions to improve health and education outcomes. Specific support is to be given to female education that promotes gender equality, safe water and sanitation, child immunization, as well as social safety nets to protect the vulnerable in the society.

The Government's pro-poor fiscal strategy is laid out in its report for the Consultative Group meeting in Tokyo during June 2001. The report, entitled *Cambodia: Strengthening Macroeconomic Stability and Ensuring Sustainable Broad-Based Development* (MOEF, 2001), describes in considerable detail the Government's recent and proposed actions to implement reform programs aimed at accelerating economic growth, alleviating poverty and building a foundation for long-term economic growth and sustainable development. The fiscal reform package seeks to expand domestic revenue by broadening the tax base, providing equity by increasing the allocation of public expenditures to social sectors, and improving the effectiveness of overall public expenditure.¹⁵

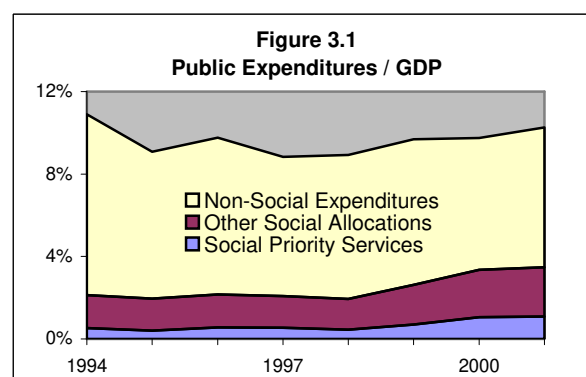
Overall fiscal policy aims to (a) enhance revenue through improved tax and duty collection; (b) provide sound management of state-owned assets; and (c) provide administrative reform and military demobilization. The goal is to move towards a current budget surplus by taking revenue-enhancing measures, improving public expenditures rationalization and efficiency, improving tax and customs administrations, combating corruption and promoting good governance. To achieve this goal, the RGC has been shifting its spending priorities from defense and security to education, health, rural development and agriculture. The increase in spending for the priority sectors is expected to consolidate the foundation for sustainable development. Moreover, attention is being given to generating a current budget surplus in order to increase public savings for investment purposes.

¹⁵ The Public Expenditure Program (PEP) links to the budget the medium to long-term national and functional development objectives under the National Program to Rehabilitate and Develop Cambodia (NPRD), the Socio-Economic Development Plan (SEDP) and the Public Investment Program (PIP). The requirements for public investment that are set out by these development plans and programs are being incorporated into the annual budget.

B. Incidence of Public Expenditures

The main influence of RGC's fiscal policies on inequity and the level of poverty has been through expenditures on social sectors, and specifically the priority services reaching the poor. The proportion of these expenditures directed at the social sectors is measured by the 'social allocation ratio', defined as the proportion of government expenditures on social sectors. The proportion of expenditures in those social sectors directed to priority sectors for the poor is then measured by the 'social priority ratio'. These priority services normally cover primary health care and education, but in Cambodia they comprise not only health and education, but also agriculture and rural development.

The major constraint on Cambodia's spending on social services has been its relatively small overall expenditure base. Current public expenditures represent less than 10 percent of GDP, in contrast to around 15 percent in Malaysia and Vietnam, which allocate 40 and 30 percent respectively of their total expenditures on social services.¹⁶ As Table 3.1 shows, Cambodia's public expenditure ratio has not changed significantly since the start of the reforms. Social services allocations, however, have risen from 20 to 34 percent between 1994 and 2000. Moreover, the rising incidence of public expenditures in social services has occurred primarily within health and education, the two priority services that are able to reach the poor (Figure 3.1). The incidence of health and education services on the poor can be assessed from household-level data on use of public health and education services. For Cambodia, the most recently available poverty assessment (MOP, 1999a) indicates that public health facilities are used proportionately more by the better-off population than by the poor. As a result, public investment in secondary and tertiary care is primarily benefiting the wealthier segment of society.



Expenditures on public health services in 1999 were only about one-half of the average in Southeast Asia and Pacific countries (RGC, 2001b). Although the share rose from 0.66 to 0.99 percent of GDP between 1999 and 2000, it is still considerably below the regional average. The effect on the poor is twofold. On the one hand, the burden of health costs weighs especially heavily on the poorest strata, who spend the largest proportion of their income on health expenditures (28 percent), making health care expenditures a major source of debt, landlessness and further poverty (RGC, 2001b); on the other, the poorer Cambodians use health services substantially less than wealthier individuals because access to health facilities is more difficult for them.

In education the system is still heavily reliant on private contributions to costs by households. It is therefore not surprising to find a very low representation of the poor in

¹⁶ Based on data from World Bank (2001a: Selected World Development Indicators, Table 14).

the secondary student population, where only 2 percent of students are drawn from the poorest 20 percent of the population (RGC, 2001b). The education strategic plan in the SEDP-II period aims to increase public spending on basic education as a means of implementing pro-poor education financing policies.

External shocks and domestic crises often aggravate the situation by affecting social sector spending more than other sectors. The internal political crisis in mid-1997 precipitated by conflict between the two major political parties severely affected public revenue and expenditures. Customs revenue declined sharply and the government introduced austerity measures to reduce public spending. However, expenditures on defense and security overran the 1997 Budget Law level, while education, health, and agriculture and rural development experienced 10 to 25 percent budget cuts.

While meso-policies have a direct bearing on the poor, the difficulties of quantifying their macroeconomic consequences on growth and equity are well documented (Sahn, Dorosh and Younger, 1997: Chapter 4). The problem of measurement arises from the difficulties of converting non-income welfare improvements into primary income improvements for the poor. It is likely that the lack of this observance is what has led to some authors of cross-country studies on growth, inequality and poverty to focus on growth as engine for reducing poverty. Dollar and Kraay (2000), for example, have found that reducing inflation and lowering government expenditures tends to generate pro-poor growth by improving the distribution of income. They therefore concluded that these macroeconomic policies tend to have a greater impact on poverty alleviation than government social spending, formal democratic institutions, and primary school enrollment rates.

Table 3.2
Human Expenditure Impact of Public Policies

	Human expenditure ratio a/	Human expenditure per person b/	Human expenditure impact ratio c/
1994	1.5%	\$3.5	0.07
1995	1.3%	\$3.3	0.06
1996	1.5%	\$3.8	0.07
1997	1.4%	\$3.7	0.07
1998	1.4%	\$3.4	0.06
1999	2.0%	\$5.0	0.09
2000 d/	2.5%	\$6.3	0.12
2001 d/	2.6%	\$6.9	0.13

a/ Ratio of priority service expenditures to GDP.

b/ Ratio of human expenditures per capita.

c/ Human expenditures per person divided by life expectancy.

d/ Based on budget projections by Ministry of Economy and Finance.

Table 3.1
Incidence of Public Expenditures on Social Sectors (Percentages)

	Public Expenditure Ratio a/	Social Allocation Ratio b/	Social Priority Ratio c/
1994	0.109	0.20	0.70
1995	0.091	0.22	0.67
1996	0.098	0.22	0.69
1997	0.088	0.23	0.68
1998	0.089	0.22	0.72
1999	0.097	0.27	0.75
2000d/	0.097	0.34	0.75
2001d/	0.103	0.34	0.76

a/ Ratio of current public expenditures to GDP.

b/ Ratio of total government expenditures in social sectors.

c/ Ratio of health and education in social sector expenditures.

d/ Based on budget projections by Ministry of Economy and Finance.

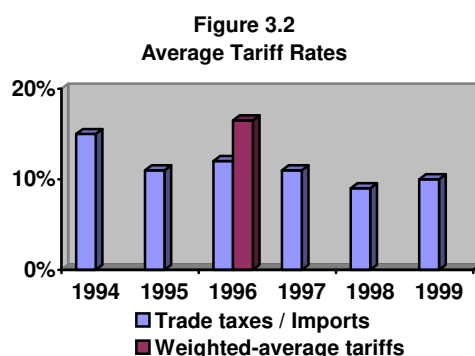
Despite these difficulties, it is possible to approximate the impact of the Government's meso-policies on the poor through the 'human expenditure impact ratio' (Stewart, 1995). This index is equal to the priority service expenditures per person adjusted by the life expectancy, which is used as a crude measure the output of persons in a manner similar to the capital output ratio for capital expenditures. For

Cambodia, Table 3.2 shows that the ratio has been rising, particularly in 2000-01. However, it is still below the ratio reported by Stewart (1995) for Bangladesh (0.16), and considerably below that of Singapore (6.1). There is therefore considerable room for improving the impact of these policies. Specific channels include (a) reducing indirect taxes on the poor, (b) raising public expenditure relative to GDP (the public expenditure ratio), (c) raising the proportion of public expenditures directed at the social sectors (the social allocation ratio), (d) raising the share of spending on priority services in social sector expenditures (the social priority ratio), and (e) improving the efficiency of resources used in priority expenditures (the governance issue addressed by the ADB, 2000b; the RGC, 20001c; and the World Bank, 2000b).

For Cambodia the evidence suggest that government spending on priority sectors for the poor has tended to follow overall government spending, and that the share of expenditures going to the social sectors is often positively correlated with overall public expenditures. Consequently, expenditures on the priority sectors expand during periods of growth, and contract during periods of domestic instability and external shocks. It therefore follows that expenditures on priority services for the poor are closely related to the country's growth performance.

C. Economic Growth Consequences

The Government's ability to allocate funds to priority expenditures for the poor and to public infrastructure supporting economic growth and real incomes of households depends on the performance of the economy in general, and budget deficit targets and tax revenue enhancement policies in particular. On the revenue side, Cambodia succeeded in raising revenue from 9 percent to nearly 12 percent of GDP between 1996 and 2000, mainly from tax revenue increases as a result of the introduction of the value-added tax (VAT) in 1999. At the same time, revenue from import duties fell from 46 to 27 percent of domestic revenue in the same period, as a result of tariff reductions. Despite the overall revenue expansion, the country's fiscal revenue as a percentage of GDP remained well below the regional average of around 18 percent (RGC, 2001a). In the 2001 budget year, the Government has taken a number of revenue-enhancing measures that include strengthening the collection of VAT and other taxes, enlarging the coverage of taxpayers subjected to VAT, expanding the tax base, overhauling the legal framework and tax collection procedures, and improving the recover of arrears.

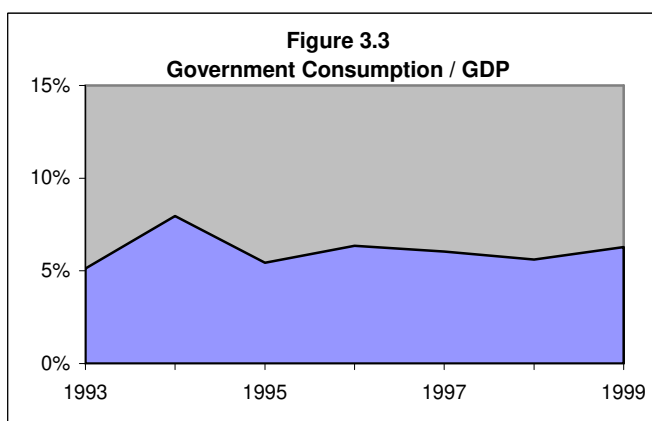


The RGC's objective of reducing its dependence on trade taxes for its revenue-generating objective appears to be succeeding. The share of trade taxes in total government revenue decreased from 48 to 33 percent between 1994 and 1999. This lower reliance on trade taxes has paralleled a lower tax burden on imports, as the share of trade taxes to imports has contracted in response to

tariff reforms (Figure 3.1). The average tariff rate (measured by the ratio of trade taxes to merchandise imports) fell from 15 percent to 10 percent between 1994 and 1999. However, while this ratio equaled 12 percent in 1996, the trade-weighted average tariff was 16.5 per cent if imports of non-monetary gold and silver are included, and 19.5 per cent if they are excluded. This large difference between collected rates and official rates is attributed to under-invoicing, valuation errors and tariffs exemptions. Moreover, almost all garment manufacturers in Cambodia are registered investment firms producing mainly for export, and are thus exempt from paying duty on imported raw materials and intermediate goods. In Cambodia's tariff schedule the weighted average tariff duty on imports of garments (HS 6101-6217) is 34 per cent (1995-1996 trade weights), and the weighted average tariff duty on imports of yarn and fabrics (HS 50-60) is 14 per cent. A trade-weighted average of tariffs would therefore overestimate actual tariff receipts.

On the expenditure side, the composition of public spending has shifting away from defense and security spending and towards the priority sectors of health, education, agriculture and rural development. Expenditures on defense and security were approximately 50 percent of total current expenditure in 1996, whereas they were 37 percent in 2000, or 3.6 percent of GDP (RGC, 2001a). Public expenditure on the four priority sectors increased from 1.4 percent of GDP in 1998 to a budgeted 2.5 percent in 2000, which is still below the average of 5 percent of GDP in other low-income countries. In the 2001 budget year, spending on the four priority sectors of health, education, agriculture and rural development is budgeted at 3 percent of GDP.

The major limitation on the ability of fiscal policy expenditures to directly influence growth and the incidence of poverty in Cambodia is the small size of public expenditures in the overall economy. Figure 3.3 shows that government consumption has remained at between 5 and 6 percent of GDP since 1995. Under these conditions, the fiscal multiplier is small.¹⁷ To measure the overall incidence of public expenditures on real incomes of households, we need to consider fiscal policy in the context of the macro-economy. Annex A formally specifies the relationships between public revenue and expenditures and the Cambodian macro-economy with a view to measuring the impact of fiscal policies on economic growth and poverty alleviation in Chapter 5.



¹⁷ For evidence, see Chapter 5.

Chapter 4: Trade Policies

A. Public Policy Framework

The Government's pro-poor trade strategy is described in its report entitled *A Pro-Poor Trade Sector Strategy for Cambodia: A Preliminary Concept Paper*, which was presented at the Pre-Consultative Group Donor Meeting in January 2001 (RGC, 2001b). The full pro-poor trade sector strategy paper is still being formulated and will be presented to the Tokyo CG meeting in June 2001. Concern over poverty reduction is central to the strategy and, as such, the choice of sectors and use of instruments for trade reforms are assessed in terms of their possible impact on employment, income levels, and distribution and poverty dimensions.

The RGC's report proposes three basic activities for implementing the pro-poor trade strategy: (1) shifting the balance of policy emphasis from issues of market access and macro-reforms for trade to micro- and meso-level issues of supply capacity; (2) focusing on the delivery of capacity-building support at the export-oriented enterprise level; and, (3) stressing the regionalization and geographical decentralization of export businesses within Cambodia. This pro-poor trade sector strategy aims to become one of the building blocks of Cambodia's national poverty reduction strategy for the next five years and will be reflected in the final SEDP-II and full-PRSP documents as part of the growing recognition that openness is good for growth and poverty reduction.^{18 19}

The first activity of shifting the emphasis from macro-issues to micro- and meso-issues emerges from Cambodia's supply constraints and lack of export competitiveness. The lack of supply capacity is believed to be the result of a variety of factors affecting the formation or expansion of competitive businesses and export products. According to the trade strategy paper (RGC, 2001b), labor relations at the enterprise level are difficult because of the lack of adequate mechanisms for collective bargaining and labor-management dialogue. The cost to business of the resulting labor-management disputes is high, and the labor relation environment lacks adequate mechanisms to encourage productivity growth. The importance of productivity growth is particularly important in the garment export industry. There are, nevertheless, no estimates of productivity at the

¹⁸ The strategy has been formulated in the context of commitment made under the Integrated Framework (IF) by six multilateral agencies to coordinate their assistance to Cambodia in the area of trade and investment integration. In general, the IF aims to ensure that the trade strategy is formulated and implemented as part of the national strategy for poverty reduction. The agencies are the International Monetary Fund (IMF), the International Trade Commission (ITC), the United Nations Conference on Trade and Development (UNCTAD), the United Nations Development Program (UNDP), the World Bank, and the World Trade Organization (WTO). The UNDP has taken the lead in the donor community based in Cambodia to ensure effective implementation of the IF and coordination among local donors. The IF supports the inclusion of trade policy elements in the instruments of the Poverty Reduction Strategy Papers (PRSP) coordinated by the World Bank and implemented through the Country Assistance Strategies (CAS) and the United Nations Development Assistance Framework (UNDAF).

¹⁹ For evidence, see Frankel and Roemer (1998), Edwards (1998), Krueger (2000), and Rodriguez and Rodrik (1999).

country level or within specific industries. Casual observation suggests that productivity is undermined by high trade facilitation costs in transportation and customs inspections, as well as the high financing cost and lack of marketing information and know-how. While these constraints argue for micro-and meso-reforms, they do not exclude macro issues related to WTO accession and regional and bilateral trade agreements.

The second activity consists of developing the capacity of export enterprises in existing and new products. The trade strategy paper provides little information on micro- and meso-policies that would support that activity, but based on other work by the ITC, it is likely to involve the identification of traditional and newly-emerging products that have high potential growth because of their fast growing export markets, particularly in products with high value-added content.

The third action on the regionalization and geographical decentralization of export-oriented businesses within Cambodia consists of using export promotion instruments to target specific sectors. Some of the possible sectors to be targeted are those of agriculture, agro-processing, fish-farming and tourism with the use of special economic zones (SEZs) and export processing zones (EPZs) to attract industrial and agro-processing exports to new regions.

The three proposed actions address what has come to be known as ‘second-generation reforms’ that target factors increasing the risk and cost of business transactions and weakening the response to new incentives and macroeconomic reforms. They cover discretionary policy regimes that create investment uncertainty, the excessive regulation on businesses in terms of entry, operation and exit, incentive reforms in competition policy, and the cost associated with uncertainty of contracts under current legal systems. Cambodia’s economic transformation is not a simple process, but the product of complex interactions among macroeconomic stabilization, incentive reforms, and institutional adaptation. Targeting only second-generation reforms is likely to resolve only one dimension of factors weakening Cambodia’s international competitiveness.

While there has been general agreement on the prerequisites for successful development of economic and financial systems, only recently have the reform experiences of economies provided evidence on the extent, sequencing and timing of the reform process across sectors. For example, while trade policy reforms were believed to lead to revenue losses and undermine stabilization efforts, the experience of countries that have undertaken such reforms shows that they have also managed to simultaneously reduce the fiscal deficit, inflation and the balance of payments deficit. This process has occurred because countries that have current account deficits like Cambodia typically have unsustainable fiscal deficits as well, since the widening fiscal deficit increases the demand for goods and services in the economy, which in turn spills over into the external sector.

Recognizing that reforms need to encompass macroeconomic stabilization, as well as incentive and institutional reforms, SEDP-II takes a broader view of the policies needed to expand trade and support pro-poor trade policies. It separates the major constraints to

Cambodia's exports into three areas: (a) market access conditions, (b) macro policy reforms, and (c) supply capacity of domestic firms. The reforms needed in each of these areas are described in the sections that follow, after which we examine these constraints in the context of macroeconomic and structural reform effects impacting on growth and poverty alleviation in Cambodia.

B. Market Access

Cambodia has a graduated tariff structure whereby tariffs on final products are taxed at higher rates than on inputs for domestic industries. There are currently four tariff bands, which is a substantial reduction from the 12 bands that existed in 1997. The highest (50 percent) applies to consumer goods, while a tariff of 35 percent is applied on goods that compete with domestic industries that are considered to be "infant industries". At the lower end, a tariff of 7 percent is applied to inputs used for domestic production, and a tariff of 15 percent is applied to capital goods.

Tariff reforms are taking place under three types of schemes: (a) at the regional level, under the Common Effective Preferential Tariff Agreement (CEPT) of the ASEAN Free Trade Area (AFTA); (b) at the bilateral level, through a series agreements with the United States, the European Union, and about twenty other trading partners that provides Most Favored Nation (MFN) status; and (c) at the multilateral level, through Cambodia's efforts to become a member of the World Trade Organization (WTO).

Table 4.1
Implementation of 2000 CEPT Rates

Number of Tariff Lines	MFN Rate (%)	CEPT Rate (%)
43	50	30
413	35	20
457	15	10
32	15	7

Source: Ministry of Commerce

Membership in ASEAN provides access at preferential tariff rates to important regional markets, as well as cross-border investment opportunities in a favorable regulatory environment with neighboring countries. For its part, Cambodia must gradually eliminate nearly all tariffs applied to ASEAN trading partners by 2008. The schedule of tariff reductions were initiated in January 2000 on an

Inclusion List (IL) consisting of 3,114 tariff lines, which represent about 46 percent of all tariff lines. As normally occurs, Cambodia has first applied tariff reductions to lines with the lowest rates. Nevertheless, about 945 tariff lines with tariff rates of 50, 35 and 15 percent had preferential CEPT rates of 35, 20, 10 and 7 percent respectively by the end of 2000 (Table 4.1).

More widespread trade reforms should take place once Cambodia becomes a member of the WTO.²⁰ It is likely that Cambodia will be asked to eliminate its exports taxes of 5 to 10 percent on exports as raw wood, unprocessed fish, natural rubber and similar products in an effort to encourage exports of finished products over exports of raw materials.

²⁰ In 1999 Cambodia completed its Memorandum of Foreign Trade Regime for the WTO, and in December 2000 it submitted its official replies to questions raised by WTO members. Negotiations are expected to begin in the second quarter of 2000, at which time draft offers on bound tariffs and service commitments will be submitted.

Legal and regulatory reforms will also be required to make Cambodia's system compatible with the WTO Agreements.

Although Cambodia's membership in the international community will bring with it opportunities to access markets over the long run, tariff reduction commitments made under the CEPT-AFTA and those anticipated under the WTO are likely to adversely impact on the Government's budget revenue in the short run. The Government currently relies on trade taxes for nearly 40 percent of its total tax revenue, which will put additional pressure on the Government to introduce further tax reforms to strengthen and broaden the tax base. The distributional effects of these tax policies will depend on the tax structure and how increased domestic taxes impact on consumption and investment. Moreover, if mobilization of fiscal revenue remains low, macroeconomic stability might be compromised.

Trade policy reforms need to be an integral part of the PRSP strategy. In a follow-up to the mid-2000 review of the meeting of the six core agencies of the Integrated Framework (IF) for Trade-Related Technical Assistance to the Least Developed Countries, a proposal was made to fold the IF into the PRFP process. The importance of improving trade policies affecting market access arises from (a) the lack of adequate labor intensive techniques when protectionism prevents producers from exploiting their comparative advantage, (b) the existence of restrictive import taxes for production of export-oriented agricultural products, and (c) the high protection on domestic prices of manufactures to keep real income of the urban poor lower than the alternative of having a more open trade regime in which prices cannot diverge much from world prices (Rajapatirana, 2000). By including trade policy reforms through the IF into the PRFP, those reforms would become part of the Government's mainstream strategy rather than being in the periphery under the Ministry of Commerce.

C. Macroeconomic Policies

The exchange rate is the principal macroeconomic instrument used to affect changes in trade. Yet, according to the International Monetary Fund (IMF, 2000), extensive dollarization such as that in the Cambodian economy tends to prevent the central bank authorities from affecting the level of economic activity by changing the money supply and the exchange rate. Estimates place the amount of dollar-denominated transactions in Cambodia at between 70 and 90 percent, while foreign cash holdings are estimated at 85-95 percent of total currency in circulation and only 2 percent of bank assets are denominated in riel (IMF, 1998; IMF, 2000).²¹

²¹ The extent of dollarization in Cambodia can be captured by the so-called dollarization index, DI, (Rosa, 2000), defined as:

$$DI = (FCC + FCD) / EBM$$

where

FCC = foreign currency in circulation

FCD = foreign currency bank deposits

The benefits of such widespread dollarization include (a) the relative insulation of the economy from exchange rate volatility, as occurred in Cambodia during the Asian Crisis (Okonjo-Iweala *et al.*, 1999); (b) the promotion of FDI as a result of currency stability (Berg and Borensztein, 2000), (c) facilitation of external trade because of reduced transactions costs, and (d) interest rates and inflation at U.S. levels when there is full dollarization. Against these benefits are the following costs: (e) the loss of independent monetary and exchange rate policies (Berg and Borensztein, 2000), (f) the loss of seigniorage revenue from currency issuance, although there has been some small amount earned by the National Bank of Cambodia (NBC), according to the IMF (2000), and (g) possible erosion of competitiveness in non-dollarized Asian economies (Frieden, 2000).

In this section, we are interested in Cambodia's exchange rate policy tradeoff between 'credibility', which promotes FDI and facilitates trade, and 'competitiveness', which can be undermined by the selection of the dollar as the convertible foreign currency being substituted for the riel. There are two macroeconomic costs of dollarization on the competitiveness of Cambodia. The first is the one that can arise from its inflation differential with the United States because there is not a full dollarization of the economy. Since prices of tradables are determined in the world market, there can occur an exchange rate appreciation if the exchange rate does not immediately adjust to changes in prices of nontradables. The real appreciation raises local purchasing power, but puts pressure on producers of tradables. It also benefits FDI that uses foreign inputs intensively in their production.

The second macroeconomic cost of dollarization on Cambodia's competitiveness is the large currency realignments that can occur with other ASEAN member countries that float their currencies. Since trade flows are becoming increasingly intensive between ASEAN economies, and their capital flows are becoming increasingly intensive with Japan, currency realignments within the region can have large consequences on the competitiveness of Cambodia's exports and its ability to promote trade as an engine of growth and poverty alleviation. Broad reforms may therefore be required over the longer term to improve the economy's competitiveness.

The ability of the RGC to affect changes in trade through macroeconomic policies depends on the capacity of the authorities to influence nominal exchange rate movements under a partially dollarized economy. At present, the riel is mainly introduced into circulation through Government purchases of goods and services, including payment of

EBM = effective broad money supply, including both domestic and foreign currencies and bank deposits, i.e., local currency in circulation, local currency checkable deposits and local currency time and savings deposits, plus FCC and FCD.

Then the currency substitution index, CSI, equals:

$$CSI = FCC / (FCC + LCC)$$

where FCC is foreign currency in circulation, and LCC = local currency in circulation. The IMF estimate for the CSI in Cambodia is between 85 and 95.

salaries for public officials (IMF, 2000). To the extent that the Government can bring about exchange rate movements that are not simply translated into domestic price changes, then the authorities can influence the real effective exchange rate and, through this instrument, affect the level of trade. However, if the high degree of dollarization in the economy causes any change in the nominal exchange rate to simply translate into inflation, then the authorities have little or not control over the real exchange rate and trade.

The issue is central to Cambodia's trade and exchange rate policies because monetary policy affects only the nominal exchange rate directly, and the effect on the real exchange rate depends on the degree to which movements in the nominal exchange rate translate into domestic price changes. A nominal devaluation, for example, would translate into a real depreciation if wages and prices were less than fully flexible. Otherwise, the devaluation would translate into a proportional rise in domestic prices, which would eliminate any changes in the real exchange rate under the partially dollarized economy.

Over the medium to long run, Cambodia could de-dollarize the economy and either let its currency float freely, intervene in the exchange market with or without pre-determined rules, or pursue a fixed exchange rate. Alternatively, it could move to implement a currency board or adopt the dollar as legal tender. But in the near term, the ability to affect changes in exports of agricultural products to alleviate rural poverty depends critically on the extent of the pass-through effects from dollarization, that is, the extent to which changes in the nominal exchange rate translate into domestic prices.

We follow the recent work of Anaya (2000) in measuring the exchange rate pass-through in partially dollarized economies. The procedure invokes the weak version of purchasing power parity (PPP) in which the price level of a country such as Cambodia is determined

Table 4.2
Cambodia: Percentage Distribution of
Textile and Other Exports by Main
Partners, 1998

	Textiles	Other	Total
Asia	15	85	100
European Union	97	3	100
Western Hemisphere	100	0	100
<i>Of which: USA</i>	100	0	100
Other	25	75	100
World	97	3	100

Source: IMF, "Cambodia: Selected Issues". IMF Staff Country Report No. 00/135.

by its exchange rate relative to that of its trading partners, and exchange rate changes translate into proportional movements in the domestic price level. In particular, $p_t = \alpha + \beta z_t$, where p is the log of domestic prices and z is the nominal exchange rate times the international price level. The coefficient β measures the extent of the pass-through, i.e., the extent to which changes in the nominal exchange rate translate into domestic prices. When the coefficient approaches one, then PPP holds, and therefore nominal exchange rate movements are reflected in proportional

increases in the domestic prices level. In contrast, $\beta < 1$ implies an average real exchange rate depreciated during the period, and conversely $\beta > 1$ suggests a real exchange rate depreciated during the period.

Structural deviation from PPP arises from either structural or transitory differences between countries. When a country's currency appreciates, it can reflect structural

deviations arising from productivity increases, terms of trade shocks, or liberalization of trade. Slow adjusting prices are implicit in the Mundell-Fleming model of an open economy such as the one developed here for Cambodia and specified in Annex A.²² The extent of exchange rate pass-through in Cambodia is therefore critical to the application of the Mundell-Fleming model to the economy.

Our data set consists of monthly series from 1993 to early 2000 of the consumer price index (CPI) as a measure of the domestic price level, the nominal dollar exchange rate, and the U.S. producer price index (PPI) as a measure of international prices.²³ In estimating the exchange rate pass-through effect in Cambodia, we use the error-correction-model (ECM) specification, thereby provides the means by which the short-run observed behavior of variables is associated with their long-run equilibrium growth paths. In this case, the domestic price level of Cambodia, p , is related to the exchange rate adjusted international price level, z , such that

$$\Delta p_t = \alpha_0 + \alpha_1(p - z)_{t-1} + \alpha_2\Delta z_t + \alpha_3z_{t-1} + v_t \quad (4.1)$$

where $-1 < \alpha_1 < 0$, $\alpha_2 > 0$ and $\alpha_3 > -1$, and where all variables are measured in logarithmic terms.²⁴ Our estimate of (4.1) yields the following result:

$$\Delta p_t = 0.24 - 0.15(p - z)_{t-1} + 0.3\Delta z_t - 0.05z_{t-1} \quad (4.2)$$

(1.9) (3.9) (1.9)

where figures in parenthesis are t-statistics.

²² For evidence on the imperfect substitutability between imported goods and domestically produced goods in developing countries, see Lord (1991).

²³ As Anaya (2000) points out, it is conceptually preferable to use the nominal effective exchange rate instead of the dollar exchange rate, since the United States is not the main trading partner of Cambodia. One would also have to construct an index of international export prices using the price levels of Cambodia's trading partners. The process is cumbersome but possible with a longer timeframe than was available for the present study.

²⁴ The second term, $\alpha_1(p - z)_{t-1}$, is the mechanism for adjusting any disequilibrium in the previous period. When the rate of growth of the domestic price level, or inflation, p_t , falls below its steady-state path, the value of the ratio of variables in the second term decreases in the subsequent period. The speed with which the system approaches its steady-state path depends on the proximity of the coefficient to minus one. The third term, $\alpha_2\Delta z_t$, expresses the steady-state growth in P associated with Z , and the fourth term, α_3z_{t-1} , shows that the steady-state response of the domestic price level P to the variable Z is non-proportional when the coefficient has non-zero significance.

The short-run pass-through elasticity is 0.3, while the long-run elasticity is 0.66.²⁵ This less-than-unitary pass-through effect in both the short-run and long-run indicates that the riel depreciated during the period (1994 to early 2000). An estimate for the period since January 1998 yields similar results but somewhat smaller pass-through elasticities: 0.26 in the short-run, and 0.6 in the long-run. Our real exchange rate calculations corroborate the regression results that Cambodia has depreciated its currency against the U.S. measure of international prices. However, the same cannot be said about the Cambodia's prices relative to those of its Asian trading partners.

The results suggest that the dollarized Cambodian economy does have an ability to adjust its real exchange rate through a nominal devaluation, despite international trade transactions being quoted in U.S. dollars. The reason is that domestic inflation reflects transaction that take place in both riel and currency substitutes such as the U.S. dollar, and prices quoted in these currency substitutes are converted to riel to calculate the consumer price index (CPI) (ADB, 2000a). Similar results to those for Cambodia have been reported by Anaya (2000) for partially dollarized economies in Latin America, where dollarized economies also were not found to have a lesser ability to adjust their exchange rate through nominal devaluations, nor was a higher degree of dollarization found to lead to higher pass-through effects.

Table 4.3
Real Exchange Rate Indices of Cambodia and Its Trading Partner against US\$ and US CPI (1997=100)

	1993	1994	1995	1996	1997	1998	1999	2000
Cambodia	104	107	111	114	100	82	90	91
Other Asia	105	109	112	116	100	78	89	91
Thailand	111	115	119	120	100	78	91	88
Singapore	94	99	107	107	100	88	86	85
Vietnam	84	86	91	103	100	89	85	82
Malaysia	106	105	111	111	100	72	77	77
Indonesia	111	114	116	118	100	30	60	71
Philippines	89	95	103	106	100	75	84	83
Myanmar	45	60	75	90	100	106	116	124
Lao PDR	219	226	183	200	100	72	128	161
China	89	66	83	95	100	101	98	95
Taiwan	106	106	107	104	100	85	88	91
Japan	119	128	136	114	100	92	105	108
European Union	102	104	113	109	100	99	95	85
France	107	108	119	115	100	98	93	81
UK	92	94	96	95	100	102	100	95
Germany	106	110	124	117	100	98	93	81
Denmark	106	106	120	115	100	98	95	83
Netherlands	107	109	123	117	100	98	95	83
Belgium/Lux.	106	110	124	117	100	98	93	81
Italy	102	101	101	109	100	98	93	82
Ireland	125	116	115	109	100	90	83	83
Spain	108	105	115	115	100	98	94	82
United States	100	100	100	100	100	100	100	100

Note: regional averages are weighted by Cambodia's trade weights.

²⁵ The long-run coefficient is given by the formula $\beta = 1 - \alpha_3/\alpha_1$, which in this case is $\beta = 1 - (0.05/0.15)$.

Cambodia's competitiveness in the ASEAN market is especially important for agricultural exports and rural poverty alleviation. Table 4.2 shows the distribution of Cambodia's exports of textile and non-textile products to its three major regional markets. As of 1998, the latest year for which data are available, all exports to the United States and the European Union were in the form of textiles and garments. These products are covered under MFN and GSP, and were virtually nonexistent before 1995. In contrast, most products exported to the Asian region are Cambodia's traditional products. Forestry products account for three-fourths of these products, despite their having become less important to the total value of Cambodia's exports. Natural rubber, the second most important traditional export item, accounts for about 15 percent of these exports. Cambodia has also steadily increased its rice and fish exports, but the total value of those exports remained marginal.²⁶ Any effort to assess the impact of macroeconomic policies on exports needs to differentiate between the U.S. and E.U. preferential markets for textiles and garments, and that of the Asian market for agricultural exports.

Table 4.4
Cambodia: Real Cross Exchange Rate Indices, Total and by Trading Partner, against US dollar and US CPI (1997=100)

	1993	1994	1995	1996	1997	1998	1999	2000
World	105	107	102	108	100	91	96	98
Other Asia	106	108	102	109	100	89	96	99
Thailand	112	114	108	113	100	89	99	96
Singapore	96	98	98	100	100	101	93	92
Vietnam	85	85	83	97	100	101	92	89
Malaysia	108	104	101	104	100	82	83	84
Indonesia	112	113	105	111	100	34	65	77
Philippines	90	94	94	99	100	85	91	91
Myanmar	45	59	68	85	100	120	125	136
Lao PDR	222	224	167	187	100	82	138	175
China	90	66	75	89	100	114	106	103
Taiwan	107	105	98	98	100	96	95	99
Japan	121	126	124	107	100	105	113	118
European Union	103	103	103	102	100	113	103	93
France	108	107	108	108	100	111	101	88
UK	93	93	88	89	100	116	109	104
Germany	107	109	113	110	100	111	101	88
Denmark	107	105	109	108	100	112	103	91
Netherlands	108	108	112	109	100	112	103	91
Belgium/Lux	108	109	113	109	100	111	101	88
Italy	103	100	92	102	100	111	101	89
Ireland	126	115	105	102	100	102	90	91
Spain	110	104	104	108	100	111	101	90
United States	101	99	91	94	100	114	108	109

Note: REER = $NCR \cdot CPI_f / CPI_d$ where NCR is the nominal cross-rate index, and CPI_f and CPI_d are the foreign and domestic CPIs respectively. Data derived from IMF's World Economic Outlook and Ministry of Planning.

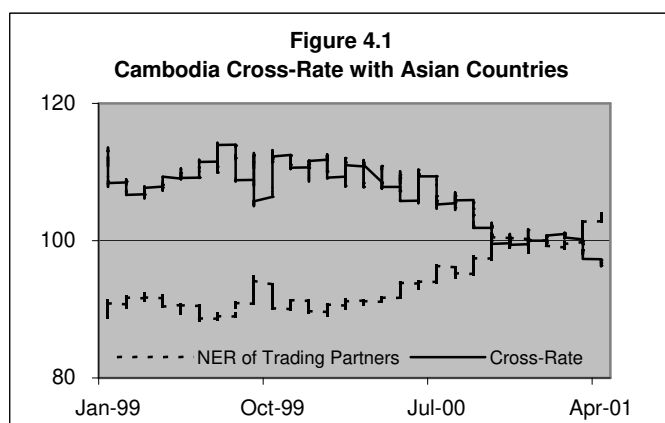
The international competitiveness of Cambodia is generally reflected in the country's real exchange rate, which takes into account both general price movements in the country relative to that of each of its trading partners, and the cross exchange rate between

²⁶ Re-exports are also important and represented about 45 percent of the total value of 1997 exports. These re-exports include cigarettes, motorcycles, beer, electronic equipment, and non-monetary gold. Most of these consumer goods are re-exported to Vietnam, while gold is directed to Thailand.

Cambodia and each of its trading partners.²⁷ Table 4.3 shows the real effective exchange rate of Cambodia and its trading partners, measured in terms of the U.S. dollar and world prices measured by the U.S. producer price index. Cambodia's real exchange rate against the U.S. dollar fell sharply following the Asian Crisis and has since recovered about one-half of its 1997 level. As of 2000, however, its real exchange rate against the U.S. dollar remains above that of the six most important trading partners, viz., Thailand, Singapore, Vietnam, Malaysia, Indonesia and Philippines.

Cambodia's international competitiveness based on the real exchange rate of the riel has been declining since 1998. The decline has occurred in the Asian market, notably Indonesia, the Philippines, Myanmar, Lao PRD, and Japan. It has improved its competitiveness in the E.U. market and, to a lesser extent, in that of the United States. As a result, Cambodian producers face a relatively more favorable position in the E.U. and U.S. markets than in the Asia market where its agricultural products are directed.

The situation is unlikely to improve in the near future as countries throughout the Asian



region devalue their currencies in response to weakening global and domestic market conditions. Figure 4.1 shows the average of daily nominal exchange rates for Cambodia's major Asian markets²⁸, weighted by Cambodia's trade with each of those countries. It also shows the nominal cross-rates of the riel against each of those currencies, also trade-weighted. There is a clear trend

toward a nominal exchange rate devaluation in the Asian economies, whereas Cambodia's nominal cross-rate with those currencies is appreciating. The prospects for promoting Cambodia's agricultural exports and supporting rural development and poverty alleviation will therefore depend on the ability and willingness of the RGC to control domestic price movements in an effort to devalue the real exchange rate and improve the export competitiveness of those products.

²⁷ The real exchange rate is defined as $e^r_t = (1/e^n)_t P^n_t/P^f_t$, where e^n is the nominal exchange rate, P^f is the foreign currency price of goods purchased abroad, and P is the domestic price level. A rise in e^r represents an appreciation, which can be brought about by either a fall in the nominal exchange rate e^n , or a fall in the relative price of domestic goods (equivalent to a relative rise in the price of foreign goods). Conversely, a fall in e^r represents a depreciation, associated with either a rise in the nominal exchange rate e^n or a rise in relative prices of foreign goods (equivalent to a fall in relative prices of domestic goods). The inverse of the real exchange rate therefore measures a country's export competitiveness, since variations in e^r influence the quantity of goods demanded in the foreign markets relative to competing foreign and domestic suppliers to those markets.

²⁸ Thailand, Singapore, Vietnam, Malaysia, Indonesia, Philippines, China, and Japan.

The importance of exchange rate policies in trade has been emphasized in the mid-2000 review of the IF by the representatives of its six core agencies. According to one of the report prepared from that meeting (Rajapatirana, 2000), the success of trade reform in least developed countries like Cambodia depends not only on trade policies, but also on a host of companion policies that include both macroeconomic policies and policies that affect the allocation of resources among different sectors and markets. Since trade liberalization can lead to a trade deficit because of the resulting stimulus to imports relative to exports in response to relative prices change, a realignment of the exchange rate will likely be needed to restore equilibrium. The evidence presented here suggests that these companion macroeconomic policies, and exchange rate policies in particular, will be critical to the ability of the Government to link trade policies to the overall growth and poverty alleviation strategy for Cambodia.

D. Supply Capacity

The focus of the RGC's pro-poor trade strategy is on expanding the supply capacity of domestic firms by reducing constraints on exports. The SEDP-II also gives particular attention to developing a range of interventions that are supportive of the business sector's trade-orientation (RGC, 2001a). These activities include development of trade information systems, promoting trade and its financing, and offering export incentives. It recognizes the inadequacy of existing infrastructural capacity, and the lack of entrepreneurial know-how to develop new export products and markets.

As mentioned earlier, information on the productivity of industries in Cambodia is unavailable.²⁹ There are, nevertheless, some other indicators. In agriculture, Kato (1998) has shown that Cambodia has relatively low yields within the ASEAN region, and that it has the least technology-intensive factor utilization in agricultural production of all ASEAN countries. Yields of rice, for example, are about 30 percent of those in Indonesia, and those of other crops are far behind other countries in the region. The use of labor, fertilizers, irrigation and machinery are all extremely limited in Cambodia relative to other ASEAN countries. In contrast, Vietnam uses its abundant labor work force more intensively, along with large uses of fertilizer and extensive irrigation as substitutes for tractors and other machinery. Moreover, limited access to credit by Cambodian farmers is a major constraint to agricultural development, as are the high cost of infrastructure services, trade facilitation services, and direct or indirect export taxes. Finally, according to the SEDP-II, labor productivity in Cambodia is believed to be low because of the relatively weak level of skills in the labor force (RGC, 2001a).

These constraints are particularly important since agriculture contributes 40 percent of GDP, the rural areas contains the majority of the country's poor, and agriculture has been the slowest growing sector in the economy. In contrast, the manufacturing and service sectors have experienced a rapid growth, yet only employ about one-fourth of the labor force. The export sector only absorbs 7 percent of the labor force, and much of these exports are concentrated in garments directed to the U.S. and E.U. markets. Since much

²⁹ For a survey of total factor productivity (TFP) estimates for Hong Kong, China, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Taipei, China and Thailand, see Felipe (1997).

of the garment sector operates on a CMT (cut, manufacture and tailor) basis, with fabric and accessories (zippers, buttons, thread) being imported and the purchase of local inputs limited to transportation and freight clearing services, there is little value added in the process (RGC, 2001a). There is also very little processing of exported wood or rubber. Only tourism has a large value added in the economy through its direct contribution and use of locally produced goods and services. Since these manufacturing and service activities are mainly located in the urban areas, there is a widened gap between the rural and urban areas of the country, both in terms of income levels and distribution, and the incidence of poverty. For this reason, the focus of the RGC's pro-poor trade strategy needs to be on expanding the supply capacity of the agricultural sector to provide employment and income to rural workers, while continuing to promote manufacturing and service activities to generate an economy-wide growth that will help to reduce poverty.

Chapter 5: Macro Policy Assessments

A. Overview of Macroeconomic Model

In this chapter we assess the RGC's macroeconomic policies and their effects on poverty alleviation on the basis of a parsimonious macroeconomic model that incorporates the characteristics outlined in Chapter 2. A more detailed specification of the model is contained in Annex A, while Annex B lists the EvIEWS program used for the baseline and policy simulations. The principal policy variables that we examine are (a) fiscal expenditures on the social sectors and the monetarization of the fiscal deficit, (b) trade liberalization and its impact on fiscal revenue and social sector expenditures, and (c) changes in the competitiveness of agricultural exports to the Asian region. The main exogenous variables are (a) foreign regional market conditions as they related to economic growth, (b) inflation and exchange rates of these regional markets, and for the Cambodian economy, (c) the RGC's non-tax revenue, (d) the distribution of expenditures between social sector programs and other programs, and (e) the level of official development assistance (ODA).

Four sets of simulations have been performed with the model. The first provides the benchmark against which policy impact assessments are measured. The second evaluated the effect of increased public expenditures on social services and the associated effects of the fiscal deficit on output and prices. The third assesses the impact of trade liberalization policies and implications for the real effective exchange rate adjustments needed to neutralize the initial effects of trade policy reforms on the balance of payments, the national income accounts, and the incidence of poverty. Finally, the model assesses the impact of Cambodia's changing competitiveness in the Asia region, and the impact of those changes on agricultural exports and rural poverty.

The forecasts generated by the model are indicative of the direction of the economy and should be interpreted with caution since the model results depend on key assumptions and are demand driven, insofar as they exclude details about the production-side of the economy. Nevertheless, the results provide a parsimonious representation of the Cambodian economy that yield an internally consistent set of estimates about the likely outcome of events over the next few years. For the baseline forecast, they also point to important issues about the near-term prospects of economic growth and poverty levels.

Table 5.1
Major Baseline Assumptions, 2001-2005
(Average annual growth rates)

	Percent
Growth rate of foreign markets	
Asian Region	5.5
United States	3.2
European Union	3.3
Inflation in foreign markets	
Asian Region	4.0
United States	3.0
European Union	2.5
World prices	
Primary	
Commodities	2.0
Manufactures	3.0

B. Growth, Equity and Poverty in SEDP-II

The baseline assumptions for Cambodia's major export markets and foreign investors are that the global economy will slow in the next few years. That trend growth rate is in line with the historical trend during the last decade and is based on the IMF's *World Economic Outlook* report for September 2000 (hereafter WEO 2000). The WEO 2000 economic growth forecast of 3.2 and 3.3 percent a year for the United States and the European Union are maintained throughout 2000-2005, as is the 5.1 percent growth for Asia excluding India and China (see Table 5.1).

For world prices of primary commodities and manufactures, it is clear that the WEO2000 is excessively optimistic for primary commodities and pessimistic for manufactures, based on developments through the first quarter of 2001. While the WEO2000 forecast is for a 3.5 and 4.5 percent rise in commodity prices in 2000 and 2001 respectively, the average price for this group of products has fallen by 8.6 percent (nearly 10 percent for agricultural products) in the last 12 months. We therefore adopt historically consistent price projections of 3 percent for manufactures and 2 percent for primary commodities in the base forecast.

The assumptions underlying our baseline projection represent a fairly benign scenario of moderate and sustainable growth. The risk to this assumption is predominantly on the downside and a significantly worse outcome is clearly possible in the three important markets for Cambodia (Asia, the United States and the European Union). The potential for a broad and deep economic downturn in these regional markets would severely impact on Cambodia's exports and its growth and poverty alleviation capability.

Table 5.2
Projections of Key Macroeconomic and Poverty Variables
(Annual percent change)

	Historical 1997-2000	Projected 2001-2005
Gross Domestic Product (Constant KR)		
Exports of Goods and NFS	9.1%	4.6%
Imports of Goods and NFS	14.1%	5.2%
Total Investment	20.5%	7.2%
Foreign direct investment	2.7%	5.7%
Other investment	21.5%	9.2%
Total Consumption	2.7%	5.2%
Government Consumption	1.4%	6.7%
Private Consumption	2.8%	5.1%
Gross Domestic Product	3.0%	5.3%
Fiscal Indicators (Constant KR)		
Total Revenue, of which	11.2%	6.8%
Trade taxes	-2.1%	5.9%
Other taxes	31.2%	8.0%
Total Expenditures, or which	10.5%	7.1%
Current expenditures	6.5%	6.7%
Social Sectors	22.6%	6.7%
Others	1.3%	10.0%
Capital expenditures	17.3%	8.0%
Overall Balance / GDP	-4.5%	-5.2%
Balance of Payments (US\$)		
Merchandise Exports	12.7%	9.2%
Agricultural Exports	-6.4%	4.0%
Manufacturing Exports	89.4%	10.4%
Merchandise Imports	10.8%	10.7%
Service Receipts	6.6%	10.2%
Service Payments	9.1%	5.0%
Direct Investment Inflows	-5.2%	10.4%
Output by Sectors (Real)		
Agriculture	-1.1%	5.1%
Manufacturing	12.0%	7.8%
Services	3.5%	3.4%

The impact of the slowdown in global economic activity on the Cambodian economy is shown in Table 5.2. Real GDP is projected to rise by 5.3 percent a year between 2001 and 2005, driven by a 4.6 percent annual growth in the real value of exports of goods and non-factor services, as well as a 7.2 percent annual investment growth. The expansion of imports of goods and non-factor services is nevertheless expected to exceed that of exports, and the growth of public consumption is likely to be substantially higher than that of private consumption. The assumptions underlying the rapid growth of public sector expenditures are that administrative expenses, especially on economic programs, and expenses on social sector programs will increase considerably over the forecast period, while defense and security expenditures will slow. Although trade taxes will grow with the expansion of trade, they will become somewhat less important as a source of revenue. The forecast is for the fiscal deficit to expand from 4.5 percent in 2001 to 5.6 percent in 2005.

Inflation is projected at an average annual rate of 2.8 percent in 2001-05, with higher rates in the earlier years than in the later ones. Differences in relative price changes between Cambodia and its major trading partners are expected to lead to a modest annual appreciation of the riel during 2001-05, assuming that the pass-through of price changes to the nominal exchange rate follows the historical pattern described in Chapter 4. That appreciation will contribute to the deterioration of the trade balance, as import growth outpaces that of exports. Service receipts, however, are expected to expand at a faster rate than in the recent past, while the growth of service payments is expected to decelerate somewhat. In the capital account, foreign direct investment inflows are projected at 10 percent a year through 2005, which will help to sustain the growing current account deficit.

Table 5.3
Poverty Changes in Cambodia under Base Forecast

	Target Growth with Neutral Policies			Target Growth with Pro-Poor Policies		
	2000	2005	Change	2000	2005	Change
Headcount Index:						
Cambodia, of which	36	33	-9%	36	31	-14%
Rural Areas	40	36	-10%	40	34	-14%
Urban Areas	21	20	-6%	21	18	-14%
Inequality (Gini Coefficient)						
Cambodia, of which	42	48	15%	42	42	0%
Rural Areas	33	38	17%	33	33	0%
Urban Areas	45	50	11%	45	45	0%

Source: Derived from baseline forecasts in Table 5.1 and elasticities in Table 1.2.

The past differential growth among the three sectors is expected to continue over the medium term. Manufacturing output growth is expected to lead overall output growth but at a slower rate than in the recent past, while the growth of agricultural output could outpace that of the service sector if external shocks from natural disasters do not produce a sustainable reduction in agricultural output. Under these circumstances and assuming that the past responsiveness of poverty and inequality to growth will continue in the near future, Table 5.3 shows that the incidence of poverty would decline from 36 percent to 33 percent over the five-year period. This modest decline assumes that increased inequality accompanies growth driven by policies that are neutral to poverty. If pro-poor policies

instead maintained inequality unchanged during the five-year period, the reduction in poverty would nearly match the 31 percent target set under SEDP-II. These changes would be dominated by developments in the rural areas, where poverty in the country is concentrated.

C. Fiscal Policy Impact

The impact of fiscal policy on real economic activity (GDP, consumption, investment, imports and exports) and price-related variables (prices and the exchange rate) are calculated through multiplier analysis. This type of analysis provides an opportunity to evaluate the dynamic properties of the system of equations describing the Cambodian economy in terms of the adjustment process of the system from one steady-state growth path to another when changes in policy variables take place.³⁰

In the calculation of the multipliers, two solutions are obtained from the dynamic simulations of the macroeconomic model. The difference between the two simulations

Table 5.4
Multiplier Analysis of One-Time 10% Current Public Expenditure Increase

	Unit of Account	Multiplier (%)		
		Impact (Same year) a/	Interim (5 yrs)	Total (20 years)
Price Level	Index	2.7%	6.0%	4.0%
Real Effective Exchange Rate	Index	1.9%	4.2%	2.8%
Exports of goods	Nominal US\$	-0.6%	-4.7%	-5.3%
Exports of goods and nfs	Constant KR	1.4%	-0.3%	-2.1%
Imports of goods	Nominal US\$	0.6%	-1.5%	-6.2%
Imports of goods and nfs	Constant KR	0.9%	2.8%	-3.2%
Trade tax revenue	Constant KR	1.0%	2.7%	-3.5%
Gross capital formation	Constant KR	-0.5%	-3.2%	-7.5%
Consumption, of which	Constant KR	0.7%	-0.3%	-5.0%
Private	Constant KR	0.2%	-0.9%	-5.7%
Government	Constant KR	10.0%	7.7%	2.7%
Real GDP	Constant KR	0.3%	-2.3%	-5.6%
Poverty	Headcount	na	-1.7%	na

a/ One-period lag for prices, exchange rate and exports.

³⁰ Dynamic multipliers measure the effects on the activity and price-related variables of an increase or decrease in the values assigned to the policy variable (current expenditures, in this case) by some constant amount that is then either maintained or returned to its original level in all subsequent periods. Dynamics are introduced when calculated, rather than actual, values are used for lagged endogenous variables in the system, and they show the time path of the economic activity variables generated by changes in the policy variables. The first-period effect is the impact multiplier; the interim multiplier measures the effect after *n* years; the cumulative multiplier measures the total response.

occurs in the value assumed by the policy variable. The first set of values for the policy variable generates the control solution. The second set of values incorporates an increase in the policy variable whose unit increase is sustained throughout the remainder of the simulated period.³¹ Comparison of the two solution paths then provides information about the contemporaneous response (impact multiplier), the interim response (interim multiplier) and the total response (total multiplier). In the case of Cambodia, the interim multiplier is measured at year 5, the completion of SEDP-II. The cumulative multiplier is measured at year 20, a period of time that is sufficient for all dynamic adjustments to the new tariff structure to occur and a new steady-state solution to be achieved.

Table 5.4 illustrates the effect of a 10 percent increase in public expenditures on the Cambodian economy. The expansion occurs in 2001 and the constant riel value of that increase is maintained in subsequent years. The resulting increase in the fiscal deficit leads to a price rise of more than 2.7 percent in the year following the expansion, and that rise is partially passed through to the nominal exchange rate. By 2005 the CPI is 6 percent higher than it would otherwise have been. Without a full pass-through of price changes to the exchange rate, the real effective exchange rate appreciates and worsens the balance of payments, which in turn slows down domestic investment and private consumption. Trade tax revenue increased because of the larger volume of imports, which in turn would stimulate further government expenditures. Overall, real output of the economy is lower than it would otherwise have been without the worsening fiscal deficit, and poverty is reduced from 36 percent to 33 percent at the national level. The results demonstrate the crowding out effect of fiscal expenditures in the economy when price changes impact on the real exchange rate, and underscore the importance of avoiding an expansion of the fiscal deficit.

D. Trade Liberalization Effects

Available information on the structure of trade and tariffs is limited. More detailed information would have permitted us to evaluate the impact on different types of products based on their degree of processing in agriculture and manufactures under alternative liberalization strategies in the usual reformed structures (concertina, two-tier, uniform and a combination of two-tier and unified methods).

An expansion of imports following liberalization normally has a favorable impact on capital formation, which can offset the leakage and expand real GDP. The lower average tariff rates stimulate gross capital formation, which in turn bolster the overall growth of the economy. The increased national income further stimulates private consumption, while public sector expenditures are likely to contract in response to the lower trade tax revenue. The public sector may nevertheless receive some compensation for the reduced trade tax revenue from increased tax revenue resulting from the private sector's expanded economic activity. However, as we have seen in the previous section, if the government does not cut expenditures by a rate that is proportional to the reduction in overall tax

³¹ For purposes of cross-policy comparisons, it is often convenient to alter the policy variable in the control solution by one or ten percent, depending on the magnitude of the policy variable.

revenue, a large budget deficit will raise prices, cause the real exchange rate to appreciate and further stimulate imports at the expense of exports.

In the present case, with only an aggregate proxy for trade prices, we limit the analysis to across-the-board tariff reductions. In particular, we attempted to estimate the impact of a cut in average tariffs from the present level. However, our proxy price data based on a trade-weighted average of internationally traded agricultural and manufactured products were not significant in the estimated equation for imports. Attempts to build a more accurate import price series based on mirror trade data for Cambodia were not able to be completed during the period of this study for lack of a timely response from the United Nations office maintaining the COMTRADE database. We therefore leave this important exercise and others related to the economy-wide impact of trade policy reforms to future work and extensions of the present analysis.

E. Impact of Exchange Rate Realignment

A devaluation is often needed to counter the trade balance effect of trade liberalization. The overall results of the estimated import and export demand functions, as well as those for foreign direct investment, support generalizations to the effect that the real exchange rate changes significantly impact on Cambodia's balance of payments and the economy. The magnitude of the effects of exchange rate changes on Cambodia's balance of payments and the economy in general can be readily calculated through multiplier analysis. The results indicate how exchange rate changes influence the current and capital accounts, the overall balance of payments, and the national income accounts.

Table 5.5 illustrates the effect of a one-time 10 percent devaluation in Cambodia's real effective exchange rate. The devaluation is transitional, insofar as the real exchange rate returns to the baseline solution in the second period. The impact is therefore transitional also. We have selected this procedure rather than a sustained real exchange rate devaluation because no attempt has been made to examine the equilibrium exchange rate, in which the devaluation moves to the equilibrium and is sustainable in the long run.³²

The devaluation is based on an across-the-board devaluation of the riel relative to each of the country's three major trading areas. For imports and foreign direct investment, the devaluation is at the world market level, since a devaluation of the riel does not influence the source of Cambodia's imports. Although the effect of exchange rate changes on foreign direct investment does not consider cross rates, it is likely that Cambodia's exchange rate changes relative to the home country of the foreign investors would significantly impact on the level of foreign direct investment. However, data on investment inflows by country of origin were not available for that type of analysis.

The results show that a 10 percent real exchange rate devaluation would significantly impact on Cambodia's economy. In the balance of payments, merchandise exports adjust almost entirely within the second period. A 10 percent devaluation leads to a near 8 percent expansion in the US dollar value of exports in the year following the devaluation

³² For an application of this alternative approach, see Lord (1998) and Lord (2000).

and an additional 4 percent expansion in the following one. Imports contract immediately as a result of the devaluation, but thereafter response to the feedback effect between the impact of the devaluation on the balance of payments and the national income account. Initially, the value of imports declines, but the expansion in real GDP associated with the improved balance of trade on goods and non-factor services eventually leads to an increase in imports, albeit by a smaller growth rate than that of exports. A similar situation to that of merchandise trade occurs with trade in services. In the capital account, the devaluation leads to a substantial expansion in FDI, which reflects the outward orientation of FDI in Cambodia.

Table 5.5
Multiplier Analysis of 10% Transitional Real Exchange Rate Devaluation

Devaluation		Multiplier (%)	
	Units	Impact (Same year)	Interim (5 yrs)
Balance of Payments			
Goods: Exports f.o.b.	Nominal US\$	8.4%	1.0%
Agricultural Exports	Nominal US\$	6.9%	0.0%
Manufactured Exports	Nominal US\$	10.4%	1.2%
Goods: Imports f.o.b.	Nominal US\$	-4.1%	1.9%
Government Revenue and Expenditures			
Tax on trade	Constant KR	-4.1%	1.9%
Trade Taxes/Total Taxes	Percent	-2.4%	1.2%
Fiscal Deficit/GDP	Percent	-1.0%	-3.5%
National Income Accounts			
Exports of Goods and NFS	Constant KR	1.2%	0.8%
Imports of Goods and NFS	Constant KR	-3.5%	1.7%
Total Investment	Constant KR	9.3%	3.4%
Total Consumption	Constant KR	1.5%	2.8%
Government Consumption	Constant KR	-0.3%	0.1%
Private Consumption	Constant KR	1.6%	3.0%
Gross Domestic Product	Constant KR	3.6%	2.6%
Output			
Agriculture	Constant KR	1.4%	2.8%
Manufacturing	Constant KR	3.8%	3.6%
Services	Constant KR	9.2%	2.2%
Poverty			
Total	Headcount	na	-2.6%
Rural	Headcount	na	-2.5%
Urban	Headcount	na	-2.6%

Note: Reported impact has one-period lag on exports of manufactures, total exports, private and total consumption, and output of primary and secondary sectors.

With the one-time 10 percent devaluation, the fiscal situation worsens in the first year but subsequently improves. Trade taxes initial contract by 4 percent. However, trade taxes expand in subsequent years because of the economic growth induced expansion in imports. Real GDP is over 3.5 percent higher in the year of the devaluation and remains significantly higher in the following two years. As expected, the output stimulus affects the service and manufacturing sectors more than agriculture. Nevertheless, agricultural exports are significantly affected by the exchange rate realignment and poverty levels in both the rural and urban areas fall by about the same percentage rate because of improved output and export revenue. For poverty reduction, therefore, the responsiveness of agricultural exports to relative price changes suggests that exchange rate policies could be an effective instrument in promoting exports, raising incomes and lowering the incidence of poverty.

Chapter 6: Implications for Program Formulation

This study has assessed the impact of macroeconomic and structural adjustment policies on economic activity and poverty in Cambodia. In general, our analysis suggests that the RGC can meet the targets set by SEDP-II by pursuing a mix of economic growth and pro-poor growth policies, but that careful attention needs to be given to the interaction of macroeconomic policies on the economy. Of the three areas of policy reform that we have addressed in this study, trade reform is likely to have the greatest impact on overall poverty, while exchange rate adjustments are more important in promoting agricultural exports and reducing rural poverty. Fiscal policy reforms have a less dramatic effect than the other policies examined, but can have important long-term effects on human poverty alleviation. These results have a number of implications for the RGC's macroeconomic policies and structural adjustment program:

First, economic policies that promote growth without targeting inequality are unlikely to reduce the incidence of poverty to the target level established by the RGC. Economic growth is undoubtedly the single most important source of poverty reduction insofar as it improves the mean income of the population. However, in Cambodia the redistribution effect of growth is negative for poverty since growth tends to promote incomes of the higher income groups more than those of lower income groups. Therefore, economic growth by itself is unlikely to yield a substantial reduction in poverty. Although we have not investigated the causes of increased inequality, there is abundant evidence that structural adjustment programs can negatively affect the poor in the short run (Mohan, 2000). For this reason, the RGC will need to adopt pro-poor policies that redress income inequality by targeting human resource development for poor people. These policies are already included in SEDP-II under priority public expenditures on health, education, agriculture and rural development.

Second, an increase in fiscal expenditures targeting social sector programs could weaken the poverty reduction strategy if they increase the fiscal deficit and undermines price stability. Apart from the direct negative effect on the poor because they tend to hold most of their assets in cash, an acceleration of inflation increases the cost of producing tradable goods and leads to a deterioration in the international competitiveness of exports. The ensuing deterioration in the trade balance will lower output and employment, and ultimately work against efforts to reduce poverty. A reversal in the fiscal imbalance can occur through either reduced expenditures or increased taxes. However, a larger tax burden can have a negative effect on income distribution in a regressive tax system, while lower expenditures often target subsidies that directly impact on the poor. It is therefore more expedient to avoid a fiscal deficit expansion than to attempt to remedy the inflationary consequences of the expansion.

Third, a reversal of the current appreciation of the real cross-rate of the riel with other Asian currencies would improve the regional competitiveness of agricultural products and have a particularly positive effect on rural incomes. An improved terms-of-trade between tradables and non-tradables would improve income distribution because the

agricultural sector employs most of the Cambodian labor force, and the rural sector contains most of the poor. Since most agricultural exports are directed to the Asian region, whose currencies have recently been devalued against the US dollar, Cambodia will need to ensure that domestic costs remain low if it is to maintain its exchange rate competitiveness in this region.

Finally, trade policy reforms need to become part of the mainstream poverty reduction strategy since trade in goods and services could drive economic growth and the reduction of poverty. Liberalization of trade, in particular, could have a large positive effect on poverty as resources are shifted from import-substitution industries to export-oriented activities and unskilled labor-intensive exports that generate employment and income for the poor. However, the accompanying short-term reduction in government revenue from trade taxes could represent a disincentive to an outward-oriented government strategy. Without a compensating revenue expansion or expenditure cutback, the fiscal deficit could expand and generate a series of price and exchange rate adjustments that would undermine the RGC's growth and poverty reduction efforts.

Cambodia still lacks a trade strategy that is well-integrated into the RGC's mainstream growth and poverty reduction strategy. Part of the problem is that trade policy reforms have mainly responded to external requirements under specific commitments to CEPT-AFTA and the current negotiations with the WTO. The other problem is the lack of an integrated trade and exchange rate policy framework. Considerable progress has been made in viewing tariff reforms as part of a broader tax reform program that supports the transition from a large dependence on trade taxes for fiscal revenue to a broad tax revenue base. Less progress has been made in addressing how improvements in the country's exchange rate competitiveness can become a source of economic growth and generate fiscal revenue. If trade liberalization results in improved market operations and is accompanied by a more competitive exchange rate within the region, producers of agricultural products will benefit, rural incomes will improve, and poverty will be reduced.

Annex A: Structure of Model and Poverty Linkages

A. Poverty, Growth and Inequality Linkages

We build on existing methodologies to develop a simple way of ranking economic policy option in terms of their advantages as criteria for reducing the number of poor. To assess the impact of each policy we first need to derive a formula that measures the elasticity of a poverty index to changes in the level and distribution of income. When measuring the poverty impact from economic growth the usual practice is to distinguish between the economic growth effect and the income distribution effect. The headcount ratio, denoted H , measures the proportion of individuals that fall below the poverty line, denoted z . Analysis of income inequality is usually based on the cumulative distribution of income compared with the cumulative distribution of persons in households. The distribution is the familiar Lorenz curve, and the commonly used measure of the Gini coefficient is equal to the area between the Lorenz curve and the diagonal expressed as a proportion of the whole triangle.³³ Its value varies between zero and one. When income is distributed evenly within the population, the coefficient is near zero; when it is unequally distributed, its value approaches unity.

Following Székely (1998) and Kakwani (2001), we specify the headcount ratio, H , as a function of the mean income of the country, Y , and the distribution of income, $f(N)$:

$$H = H(Y, f(N)) \quad \dots(A.a.1)$$

The growth effect measures the impact on poverty from overall economic growth when the distribution of income remains unchanged; and the income distribution effect when there is a change in inequality and the country's mean income remains unchanged.

Differentiation of (A.a.1) with respect to income yields the growth elasticity, which Kakwani (1993) has shown to equal:

$$\eta_y = \delta H / \delta Y \cdot Y / H = - \alpha f(z) / H \quad \dots(A.a.2)$$

where $\eta_y < 0$. When economic growth improves income inequality, for example, through pro-poor growth policies, then the elasticity of poverty with respect to the Gini index can be written as follows:

$$\eta_g = \delta H / \delta G \cdot G / H \quad \dots(A.a.3)$$

The total change in the headcount ratio can therefore be written as:

³³ The Lorenz curve is formed by calculating the proportion of the population N with income less than or equal to y_k :
 $F_k = \sum_i f_i / N$

$$dH/H = \eta_y dY/Y + \eta_g dG/G \quad \dots(A.a.4)$$

where the first term in the right-hand side measures the impact of growth on poverty through the mean income effect, and the second component measures the impact of growth on poverty through change in the Gini coefficient.

Kakwani (2001) has demonstrated that the trade-off between the growth effect and the income distribution effect can be derived by setting the total change equal to zero, which yields the inequality–growth tradeoff index, T :

$$T = \delta Y / \delta G \bullet G/Y = -\eta_g / \eta_y \quad \dots(A.a.5)$$

If T equals 3 then a 1 percent increase in the Gini index will require a growth rate of 3 percent in order to offset the adverse impact of increase in inequality. It also means that by following pro-poor policies, if we can reduce the Gini index by 1 percent, then this policy is equivalent to having an additional 3 percent growth rate. This suggests that the larger the inequality–growth tradeoff index, the greater will be the benefits of following pro-poor policies to reduce inequality.

B. Modeling Macroeconomic Policies

To measure the effects of macroeconomic policies on economic growth and the incidence of poverty in Cambodia, we need to consider the effects of those policies on the standard components of the balance of payments, the expenditure concepts of the national accounts, and output of the rural and urban areas of the economy.

1. Expenditure-Side

In an open economy such as that of Cambodia, aggregate demand, Y , is the sum of domestic absorption, A , and the trade balance, B :

$$Y_t = A + B \quad (A.b.1)$$

The trade balance measures the net spending by foreigners on domestic goods. It is defined as:

$$B_t = X - Z \quad (A.b.2)$$

where X denotes real exports, and Z represents real imports.

Domestic absorption measures total spending by domestic residents and public and private entities. It is composed of total private consumption, investment, and government expenditures:

$$A = C + I + G \quad (A.b.3)$$

where C is real private consumption expenditure, I represents real gross domestic investment expenditures, and G is real government expenditures.

Private Consumption is positively related to income.

$$\ln C_t = 0.54 \ln(C)_t + 0.45 \ln(Y)_t \quad (\text{A.b.4})$$

(2.7) (1.8)

$$R^2 = 0.93 \quad DW = 1.6 \quad \text{Period: 1994-99}$$

Cambodia's investment is composed of fixed investment and changes in stocks. Given the importance of FDI, the component has been calculated separately from other investment activity. Other investment is related to domestic economic activity³⁴:

$$\ln I_t = -8.1 + 1.6 \ln(Y)_{t-1} \quad (\text{A.b.5})$$

(3.2)

$$R^2 = 0.83 \quad DW = 1.6 \quad \text{Period: 1994-99}$$

Stock changes are normally inversely related to the general level of economic activity. An increase in economic activity leads to a drawdown of stocks, and conversely, a cutback in economic activity often results in an accumulation of stocks:³⁵

$$\ln K_t = 7.7 - 0.31 \ln Y_{t-1} \quad (\text{A.b.6})$$

(1.8)

$$R^2 = 0.93 \quad DW = 2.3 \quad \text{Period: 1994-99}$$

2. Government Revenue and Expenditures

Government expenditures depend on total revenue and the budget deficit:

$$G = T + B^g \quad (\text{A.b.7})$$

where T is total revenue and B^g is the budget deficit.

In formulating the budget, the Government has tended maximize its expenditures, subject to tax and non-tax revenue and deficit financing. We therefore follow this procedure and determine the budget deficit from the revenue and expenditure relationships.

Current government expenditures are separated into expenditures on social sectors, denoted G^s , defense and security, G^d , and other expenditures, G^e :

³⁴ Includes binary variable for 1996 (1 in 1996; 0 otherwise).

³⁵ Includes binary variable for 1996 (1 in 1996; 0 otherwise).

$$G = G^s + \underline{G}^d + G^e \quad (\text{A.b.8})$$

where an underscore indicates that the component is exogenously determined.

Expenditures on social sectors, denoted G^s , are related to total government revenue:

$$\ln G_t^s = -1.2 - 0.98 \ln(T)_t \quad (\text{A.b.9})$$

(8.9)

$$R^2 = 0.94 \quad DW = 2.0 \quad \text{Period: 1993-99}$$

where figures in parenthesis are t-statistics.

Other government expenditures, denoted G^w , are dominated by defense expenditures and user-specified in the model.

Total revenue is composed to tax revenue, which is further separated into taxes from trade, T^t , and other taxes, T^o , plus non-tax revenue, T^n , and capital revenue, T^k :

$$T = T^t + T^o + \underline{T}^n + \underline{T}^k \quad (\text{A.b.10})$$

Taxes from trade, T^t , are calculated from the value of imports, M , and the average tariff rate, t :

$$T_t^t = tM_t \quad (\text{A.b.11})$$

Other taxes, T^o , are related to private consumption and total investment:

$$\ln T_t^o = -4.6 + 5.8 \ln(C+I)_{t-1} \quad (\text{A.b.12})$$

(22.0)

$$R^2 = 0.99 \quad DW = 2.6 \quad \text{Period: 1994-99}$$

where figures in parenthesis are t-statistics.

Notwithstanding the parsimonious representation of the public sector equations, they are sufficient to determine the impact of fiscal revenue and expenditure policies on economic growth and poverty in Chapter 5.

3. Balance of Payments

The principal components of Cambodia's current account balance are the individual balances on goods and non-factor services, income and transfers. Offsetting financial cash flows in the capital account arise from foreign direct investment, official loans and short-term flows. Overall equilibrium in the balance of payments is the sum of the trade balance, B , and the balance in the capital account, K :

$$B_t^b = B_t + K_t \quad (\text{A.b.13})$$

Capital inflows allow domestic investment to exceed national savings when they finance a current account deficit. As such, capital inflows that finance the current account deficit can increase investment and the rate of economic growth of a country like Cambodia. The relationship between the current account balance and domestic savings and investment can be demonstrated in the following manner. The balance on trade in goods and non-factor services, B , is the difference between total GDP, Y , and domestic absorption, A :

$$B_t = Y_t - A_t \quad (\text{A.b.14})$$

Since consumption is composed of private, C , and public sector, G , and since domestic investment, I , is equal to national savings, S , plus the current account deficit, B , or foreign savings, then the following identity holds:

$$S_t = Y_t - C_t - G_t \quad (\text{A.b.15})$$

Substituting the last two expressions gives the equation for the trade balance in terms of savings and investment:

$$B_t = S_t - I_t \quad (\text{A.b.16})$$

Hence the balance on trade in goods and non-factor services is the difference between savings and investment.³⁶ If Cambodia invests more than it saves, then the country is producing an amount of output Y that is smaller than the total spending on goods for consumption and investment purposes ($C+G+I$). The excess absorption over GDP, or the excess of investment over savings, implies that Cambodia has a trade deficit.

To finance the deficit and pay for the excess of consumption ($C+G$) over income/output, Y , Cambodia needs to reduce its assets or borrow from abroad. Whether assets are run down or new foreign borrowing is undertaken, Cambodia's net foreign assets, R , will be reduced by the amount of the current account deficit:

$$B_t = \Delta R_t \quad (\text{A.b.17})$$

Hence, the change in the net foreign assets, R , a stock concept, will be equal to the current account, a flow concept.

Imports – The demand for imports of Cambodia is related to domestic economic activity and the price of imports. The estimated equation for imports, M , in terms of income, Y ,

³⁶Although the term B has been used to represent the balance on trade in goods and non-factor services, in practice, B should be treated as the current account balance, excluding official transfers, when calculating gross national savings.

the price of the product, P , in foreign currency terms, and the real effective exchange rate, R , is as follows:

$$\ln(M)_t = -13.1 + 1.97\ln(Y)_{t-1} - 0.34\ln(P)_{t-1} + 0.58\ln(e^r)_{t-1} \quad \dots(A.b.18)$$

(1.1) (1.3) (2.0)

$$R^2 = 0.75 \quad DW = 2.6 \quad \text{Period: 1994-99}$$

Expenditure-switch policies in the form of tariffs create a ‘price wedge’ between the domestic price to the consumer and the world market price of the product. This measure effectively imposes a tax on the consumer. The effective tax rate, denoted t , raises the price of the product to $(1+t)P^b$, where P^b is the border price of the product. The observed price of the domestic good, P^e , is therefore defined as:

$$P^e = (1 + t)P^b \quad \dots(A.b.19)$$

Changes in the tariff rate will be fully passed on to the importer when the foreign market export supply to small markets like that of Cambodia is perfectly price elastic.

An important characteristic of trade in Cambodia is that transactions take place in currency substitutes, mainly the U.S. dollar. As such, we can decompose the price variable into the US dollar prices and the real effective exchange rate as follows:

$$P^e = P/e^r \quad \dots(A.b.20)$$

where P^e is the effective local currency price of the imported product, P is the US dollar price of the imported product, and e^r is the real effective exchange rate. The real effective exchange rate takes into account changes in the price of domestic goods, P^e , relative to foreign goods, P^f , and the nominal exchange rate, R^n . It is defined as follows:

$$R = P^e / (R^n P^f) \quad \dots (A.b.21)$$

As such, the demand for imports in Cambodia is directly affected by the real exchange rate despite the extensive dollarization of the economy, since the pass-through estimates reported in Chapter 4 suggest that the dollarized Cambodian economy does have an ability to adjust its real exchange rate through a nominal devaluation.

Exports – Exports are positively related to foreign market income and negatively related to both the price of exports and the real exchange rate. We separate exports into those of agricultural products from rural areas that are mainly directed to the Asian region, and those of manufactures and services from the urban areas that are primarily directed to the U.S. and E.U. markets. We therefore use the real cross-rates of Cambodia with other Asian countries for agricultural exports, and the real cross-rates of Cambodia with the United States and the European Union for manufacturing exports.

Export demand, X , is related to real GDP of the geographic market, Y^f , and the price of exports measured in US dollar terms that has been double deflated, P . Agricultural exports are related to real GDP of other Asian countries and the real cross-rate of Cambodia with those Asian countries³⁷:

$$\ln(X_{ag})_t = -2.8 + 2.2\ln(Y^{Asia})_t - 0.55\ln(R^{Asia})_t \quad \dots (A.b.22a)$$

(3.5) (1.8)

$$R^2 = 0.98 \quad DW = 3.0 \quad \text{Period: 1994-99}$$

Manufactured exports, mainly in the form of clothing, are related to the real cross-rate of Cambodia with the United States and the European Union and a trend variable to account for the growth of those exports under preferential market arrangements, rather than economic activity in those markets:

$$\ln(X_{mf})_t = 19 - 2.9\ln(R^{US+EU})_{t-1} + 0.85T \quad \dots (A.b.22b)$$

(3.5) (7.4)

$$R^2 = 0.98 \quad DW = 3.0 \quad \text{Period: 1994-99}$$

The price effect is decomposed into the own-price effect, and the effects from the real cross-rates (Asia for agricultural products; U.S. and E.U. for manufactures). These cross-rates take into account changes in the nominal exchange rate of Cambodia with the regional market and the relative price levels between Cambodia and that region. The decomposition allows us to separate the own-price (transmitted through their effect on the domestic-currency-denominated price level) and cross-rate effects since our interest in this study is the measurement of the impact of changes in both trade taxes and the exchange rate on the balance of trade and the macro-economy.

Export earnings from services are dominated by tourism, and it is common practice to model these types of service transactions with current value data. Since year-to-year variations in the value of export earnings from services reflect price and volume changes, the own-price variable is not included in the explanatory variables of the estimated relationship. Export earnings from services are, nevertheless, affected by movements in Cambodia's REER since the receipts are measured in US dollar terms and changes in the REER will affect the cost of tourism and other services to foreigners. Accordingly, the estimate for export earnings from services, denoted X^s , in terms of foreign real income, Y^f , and the real effective exchange rate, e^r , is:

$$\ln(X^s)_t = -22.9 + 8.1\ln(Y^{Asia})_{t-1} - 2.1\ln(e^r)_{t-1} - 0.015T \quad (A.b.23)$$

(3.1) (1.7) (2.2)

$$R^2 = 0.91 \quad dw = 3.3 \quad \text{Period: 1995-99}$$

³⁷ A trend variable was also included.

The effects of real exchange rate movements on FDI depend on the sourcing of inputs and market distribution. If cross-border production activities are directed towards exports and they rely on domestic inputs, then increased FDI inflows will improve the current account. In contrast, if cross-border production activities are oriented to the domestic market and they use foreign inputs, then the current account balance will be negatively related to FDI inflows. At present, Cambodia's FDI inflows are mainly directed at the textile and garment industry for exports to the United States and the European Union.

The estimate for FDI inflows, denoted I^f , in terms of foreign real income, Y^f , and the real effective exchange rate, R , is:

$$\Delta \ln(I^f)_t = 6.0 + 4.2 \ln(Y^{US+Asia})_{t-1} + 4.5 \ln(e^{US})_t \quad \dots (A.b.24)$$

(3.8)
(1.0)
(1.7)

$$R^2 = 0.48 \quad dw = 1.97$$

Period: 1994-99

4. Exchange Rate and General Price Level

To determine the exchange rate and general price level, we need to extend the Mundell-Fleming IS-LM model for an open economy with price rigidities to one having partial pass-through effects in a country with a high degree of currency substitution. Under the exchange rate mechanisms in which the NBC sets the official exchange rate based on rates quoted in the three major dealers in the market, the exchange rate adjusts endogenously to (a) international price movements, (b) the monetarization of the fiscal deficit, and (c) the effect on the exchange rate from the interaction between the output and money markets.

International price changes are transmitted through import prices and world market determined export prices. The import prices have a direct effect on the basket of consumer goods and an indirect effect on the domestic price level through the use of foreign inputs. Moreover, the higher the proportion of transactions denominated in dollars, the higher the degree of pass-through of world price movements into the domestic price level.

The fiscal deficit can be financed through an increase in the money supply, a decrease in foreign exchange reserves, an increase in the amount borrowed from the private sector, or an increase in the amount transferred from extra-budgetary funds. This monetarization of the fiscal deficit can cause a rise in government spending to have no effect on output since it can lead to an appreciation of the exchange rate, which reduces the trade balance by enough to offset the original increase in government spending.

Finally, we need to take into account the effect on the exchange rate from the interaction between the output and money markets. This effect is central to the Mundell-Fleming model, which we can summarize from the following representation of our model:

$$Y = C(Y-T) + G + I(r^*) + X(e^r) - M(e^r) \quad (\text{A.b.25})$$

$$M/P = L(r^*, Y) \quad (\text{A.b.26})$$

where the variables are defined as before, and r^* is the internationally determined interest rate, and M/P is the real money balance. In this system, the real exchange rate, e^r , and output, Y , are the endogenous variables. Output in a flexible exchange rate system is therefore determined by equilibrium in the money market, not in the goods market.³⁸

5. Aggregate Supply

Aggregate supply is given by the value added by the agricultural, industrial and services sectors. In modeling the value added of these three sectors, we determine the output level of tertiary sector by the economy's overall expenditure level and the activity of the other two sectors. Output of the primary sector, measured in 1993 Cambodian riel, is a positive function of agricultural exports, X_{ag} , and domestic consumption, C :

$$\ln Y_t^a = -11.7 + 1.5 \ln X_t^{ag} + 2.25 \ln(C)_t \quad (\text{A.b.27})$$

(18.1)

$$R^2 = 0.99 \quad DW = 1.5 \quad \text{Period: 1993-99}$$

Output of the secondary sector is a positive function of manufacturing exports, X_{mf} , foreign economic activity, Y^f , and the real exchange rate:

$$\ln Y_t^c = -8.0 + 3.7 \ln X_t^{mf} + 3.7 \ln Y_t^f - 0.52 \ln e^r_t \quad (\text{A.b.28})$$

(13.3) (2.0)

$$R^2 = 0.98 \quad DW = 3.2 \quad \text{Period: 1994-99}$$

³⁸ For the derivation and application to the economy of Vietnam, see Lord (1998).

Annex B: Model Listing in Eviews

'MACROECONOMIC MODEL OF CAMBODIA

'May 2001

'Preliminaries:

'Assign statment to put all simulated variables into variables ending with _f:

assign @all _f

'Trace solution for key variables

'@trace ncpr NYKMR

'-----
'ASSUMPTIONS AND POLICY VARIABLES
'-----

'Enter assumptions about the following rates:

'(1) Percentage change in tariffs (1.00 = no change):

dt = 1.00

'(2) Percent change in real GDP of regional markets:

gyus = 1.032

gyeu = 1.033

gyas = 1.055

'where U.S. = gyus; EU = gyeu); and Asia = gyas

'(3) Percent changes in CPI of regional markets:

gpus = 1.0375

gpeu = 1.025

gpas = 1.04

'where U.S. = gpus; EU = gpeu; and Asia = gpas.

'(4) Percentage Change in Nominal Exchange Rates of Trading Partners:

neus = 1.0

neeu = 1.0

neas = 1.025

'where U.S. = neus; EU = neeu; and Asia = neas.

'(5) Percent change in world prices:

gpmuv = 1.03

gpcom = 1.02

'where manufactures = gpmuv; and primary commodities = gpcom.

'(6) GOV: Growth rate of non-trade taxes and other revenue, and expenditure components:

g10=1.08

g1 = 1.06

g2 = 1.04

g3 = 1.10

g4 = 1.08

'where non-trade taxes = g10; non-tax revenue = g1; expenditures on defense = g2; exp. on
'other current expenditures' = g3; and capital expenditures = g4.

'(7) BOP: Growth rate of receipts and transfers:

g5 = 1.06

g6 = 1.05

g7 = 1.06

g8 = 1.06

g9 = 1.05

'where income receipts = g5, income payments = g6, private transfers = g7, and official transfers = g8, service payments = g9.

'=====

'PRICES, EXCHANGE RATES AND MARKETS

'=====

'Nominal Exchange Rate

'-----

:EQ_NOMINAL_EXCH

'(Calculates EXKMD with partial pass-through effect)

'GDP Deflator and Inflation:

'-----

:EQ_PRICE

'(Calculates NCPIP)

'SEDP-II:

'ncpip=ncpip(-1)*1.035

NYKMP = NYKMP(-1) * NCPIP/NCPIP(-1)

NINFP = (NYKMP/NYKMP(-1) - 1)

'FOREIGN MARKET GDP GROWTH

'-----

NYUSR = NYUSR(-1) * gyus

NYEUR = NYEUR(-1) * gyeu

NYASR = NYASR(-1) * gyas

'CPI of Trading Partners:

'-----

NYUSP = NYUSP(-1) * gpus

NYEUP = NYEUP(-1) * gpeu

NYASP = NYASP(-1) * gas

'Nominal Cross-Rate Indices of Trading Partners:

'-----

EXUSD97 = EXUSD97(-1) * EXKMD/EXKMD(-1)

EXEUD97 = EXEUD97(-1) * EXKMD/EXKMD(-1) * neeu

EXASD97 = EXASD97(-1) * EXKMD/EXKMD(-1) * neas

'Real Cross-Rate Indices (1997=100)

'-----

EXUSR = EXUSD97 * NYUSP / NYKMP

EXEUR = EXEUD97 * NYEUP / NYKMP

EXASR = EXASD97 * NYASP / NYKMP

'Real Exchange Rates (1997=100):

'-----

EXKMR = EXASR * 0.811 + EXUSR * 0.081 + EXEUR * 0.108

'=====

'TRADE BLOCK

'=====

'Tariff Level and Policy-Induced Changes

'-----

tariff = tariff(-1) * dt

'Import Price Index with Duties

'-----

MMEPI = MMEPI(-1) * gpmuv * dt

'Import Volume Index

'-----

:EQ_IMPORTS

'(Calculates MMEQI)

'SEDP-II:

'mmeqi = mmeqi(-1) * 1.05

'Import Value Index

'-----

MMEVI = (MMEPI * MMEQI)/100

'Export Prices Index

'-----

XAGPI = XAGPI(-1) * gpcom

XMFPI = XMFPI(-1) * gpmuv

'Export Volume Index

'-----

:EQ_EXPORTAG

'(Calculates XAGQI)

:EQ_EXPORTMF

'(Calculates XMFQI)

'SEDP-II:

'xagqi = xagqi(-1) * 1.06

'xmfqi = xmfqi(-1) * 1.06

'Export Value Index

'-----

XAGVI = (XAGQI * XAGPI)/100

XMFVI = (XMFQI * XMFPI)/100

'Export Value (US\$)

'-----

XAGVD = XAGVD(-1) * XAGVI / XAGVI(-1)

XMFVD = XMFVD(-1) * XMFVI / XMFVI(-1)

XSTVD = XAGVD + XMFVD

'=====

'BALANCE OF PAYMENTS BLOC

'=====

'-----

'CURRENT ACCOUNT

'-----

'1a. Exports, FOB (Mill US\$)

$$\text{XMEVD} = \text{XMEVD}(-1) * \text{XSTVD} / \text{XSTVD}(-1)$$

'1b. Imports, FOB (Mill US\$)

$$\text{MMEVD} = \text{MMEVD}(-1) * \text{MMEVI} / \text{MMEVI}(-1)$$

'1. Trade Balance (Mill US\$)

$$\text{CTBLD} = \text{XMEVD} + \text{MMEVD}$$

'2a. Service Receipts (Mill US\$)

$$\begin{aligned} & \text{:EQ_SX} \\ & \text{'(solves for CSRED)} \\ & \text{'SEDP-II:} \\ & \text{'csred} = \text{csred}(-1) * 1.06 \end{aligned}$$

'2b. Service Payments (Mill US\$)

$$\text{CSPYD} = \text{CSPYD}(-1) * g9$$

'2. Services, net (Mill US\$)

$$\text{CSBLD} = \text{CSRED} + \text{CSPYD}$$

'A.1 Exports of Goods and NFS (Mill US\$)

$$\text{CXGSD} = \text{XMEVD} + \text{CSRED}$$

'A.2 Imports of Goods and NFS (Mill US\$)

$$\text{CMGSD} = \text{MMEVD} + \text{CSPYD}$$

'A.0 Balance on Goods and NFS (Mill US\$)

$$\text{CBGSD} = \text{CXGSD} + \text{CMGSD}$$

'3a. Income Receipts (Mill US\$)

$$\text{CYRED} = \text{CYRED}(-1) * g5$$

'3b. Income Payments (Mill US\$)

$$\text{CYPYD} = \text{CYPYD}(-1) * g7$$

'3. Income, net (Mill US\$)

$$\text{CYBLD} = \text{CYRED} + \text{CYPYD}$$

'4a. Transfers, Private (Mill US\$)

$$\text{CTRED} = \text{CTRED}(-1) * g7$$

'4b. Transfers, Official (Mill US\$)

'-----

$$CTPYD = CTPYD(-1) * g8$$

'4. Transfers, net (Mill US\$)

'-----

$$CTRBD = CTRED + CTPYD$$

'A. Current Account Balance (Mill US\$)

'-----

$$CCBVD = CTBLD + CSBLD + CYBLD + CTRBD$$

'-----

'CAPITAL ACCOUNT

'-----

'1. Direct Investment, net (Mill US\$)

'-----

:EQ_FDI

'(solves for KFDND)

'SEDP-II:

$$kfdnd = kfdnd(-1) * 1.06$$

'2. Other Long-Term Capital (Mill US\$)

'-----

$$KLTKD = KLTKD(-1) * g8$$

'3. Short-Term Capital (Mill US\$)

'-----

$$KSTKD = KSTKD(-1) * g9$$

'B. Capital Account Balance (Mill US\$)

'-----

$$KCABD = KFDND + KLTKD + KSTKD$$

'-----

'C. Errors and Omissions (Mill US\$)

'-----

$$NERRD = NERRD(-1)$$

'-----

'D. OVERALL BALANCE (Mill US\$)

'-----

$$BOPBD = CCBVD + KCABD + NERRD$$

'=====

'GOVERNMENT BUDGET

'=====

'-----

'A. REVENUE (Billion 1993 KR)

'-----

'Tax on trade:

'-----

$$NGTTR = ((tariff * (-MMEVD) * EXKMD) / (NYKMP/100))/1000$$

'Other tax revenue

'-----

$$\text{NGTOR} = \text{NGTOR}(-1) * g10$$

'Total tax revenue

'-----

$$\text{NGTXR} = \text{NGTOR} + \text{NGTTR}$$

'Non-tax revenue

'-----

$$\text{NGNTR} = \text{NGNTR}(-1) * g1$$

'Total revenue

'-----

$$\text{NGTRR} = \text{NGTXR} + \text{NGNTR}$$

'-----

'B. EXPENDITURES (Billion 1993 KR)

'-----

'Social Sectors

'-----

:EQ_GOV_SOC

'(Calculates NGSER)

'SEDP-II:

$$\text{NGSER} = \text{NGSER}(-1) * 1.10$$

'Defense

'-----

$$\text{NGDER} = \text{NGDER}(-1) * g2$$

'Other Current Expenditures

'-----

$$\text{NGOER} = \text{NGOER}(-1) * g3$$

'Total Current expenditures

'-----

$$\text{NGCER} = \text{NGDER} + \text{NGSER} + \text{NGOER}$$

'Capital Expenditures

'-----

$$\text{NGCPR} = \text{NGCPR}(-1) * g4$$

'Total expenditures

'-----

$$\text{NGTER} = \text{NGCER} + \text{NGCPR}$$

'Overall balance

'-----

$$\text{NGBOR} = \text{NGTRR} - \text{NGTER}$$

'=====

'NATIONAL INCOME ACCOUNTS (Constant prices)

'=====

'-----

'BALANCE ON GOODS AND NFS (Billion 1993 KR)

'-----
'Exports of goods and NFS:
'-----

$$CXGSR = CXGSR(-1) * ((CXGSD * EXKMD) / (NYKMP / 100)) / ((CXGSD(-1) * EXKMD(-1)) / (NYKMP(-1) / 100))$$

'Imports of goods and NFS:
'-----

$$CMGSR = CMGSR(-1) * ((CMGSD * EXKMD) / (NYKMP / 100)) / ((CMGSD(-1) * EXKMD(-1)) / (NYKMP(-1) / 100))$$

'Balance on Goods and NFS
'-----

$$CBGSR = CXGSR + CMGSR$$

'-----
'INVESTMENT (BILLION 1993 KR)
'-----

'Gross Fixed Capital Formation
'-----

$$NFDIR = NFDIR(-1) * ((KFDND * EXKMD) / (NYKMP / 100)) / ((KFDND(-1) * EXKMD(-1)) / (NYKMP(-1) / 100))$$

:EQ_INV_DOM

'(solves for NIOTR)

'SEDP-II:

$$niotr = niotr(-1) * 1.08$$

$$NFCFR = NFDIR + NIOTR$$

'Stock Changes
'-----

:EQ_DSTOCKS

'(solves for NDSKR)

'SEDP-II:

$$ndskr = ndskr(-1) * 1.08$$

'Investment Total
'-----

$$NITTR = NFCFR + NDSKR$$

'-----
'CONSUMPTION (BILLION 1993 KR)
'-----

'Private Consumption:
'-----

:EQ_CON

'(solves for NCPRR)

'SEDP-II

$$NCPRR = NCPRR(-1) * 1.06$$

'Government Consumption:
'-----

$$NCGVR = NCGVR(-1) * NGCER / NGCER(-1)$$

'Total Consumption

```

'-----
NCTTR=NCGVR + NCPRR

'-----
'GDP BY EXPENDITURES (BILLION 1993 KR)
'-----
NYKMR  =  CBGSR + NITTR + NCTTR

'-----
'GDP BY ORIGIN (BILLION 1993 KR)
'-----
'Net Indirect Taxes
'-----
NITVR  =  NITVR(-1) * NGTOR/NGTOR(-1)

'Value added of primary sector
'-----
:EQ_YA
'(solves for NVA1R)
'SEDP-II:
'NVA1R = NVA1R(-1) * 1.035

'Value added of secondary sector
'-----
:EQ_YB
'(solves for NVA2R)
'NVA2R = NVA2R(-1) * 1.07

'Value added of tertiary sector
'-----
NVA3R  =  NYKMR - NVA1R - NVA2R - NITVR

'Total Value Added
'-----
NVATR  =  NVA1R + NVA2R + NVA3R


'=====
'PERCENTAGE
'=====
'-----
'PRICES AND EXCHANGE RATES
'-----
'Nominal Exchange Rate, KR/US$:
P_EXKMD = @pch(EXKMD)

'Inflation
P_NCPPI = @pch(NCPPI)

'Real Exchange Rate, KR/US$:
P_EXKMR = @pch(EXKMR)

'-----
'BALANCE OF PAYMENTS (Million US$)
'-----

```

'Merchandise Import Value, US\$:
P_MMEVD = @pch(MMEVD)

'Agricultural Export Value, US\$:
P_XAGVD = @pch(XAGVD)

'Manufacturing Export Value, US\$:
P_XMFVD = @pch(XMFVD)

'Merchandise Export Value, US\$:
P_XMEVD = @pch(XMEVD)

'Non-Factor Service Receipts, US\$:
P_CSRED = @pch(CSRED)

'Non-Factor Service Payments, US\$:
P_CSPYD = @pch(CSPYD)

'Exports of Goods and NFS (Mill US\$)
p_CXGSD = @pch(CXGSD)

'Imports of Goods and NFS (Mill US\$)
p_CMGSD = @pch(CMGSD)

'Foreign Direct Investment in Egypt (Mill US\$)
P_KFDND = @pch(KFDND)

'-----
'NATIONAL INCOME ACCTS (Constant 1993KR)
'-----

'Exports of goods and nfs, 1993KR:
P_CXGSR = @pch(CXGSR)

'Imports of goods and nfs, 1993KR:
P_CMGSR = @pch(CMGSR)

'Foreign Direct Investment, 1993KR:
P_KFDIR = @pch(NFDIR)

'Other Investment, 1993KR:
P_NIOTR = @pch(NIOTR)

'Stock Changes, 1993KR:
P_NDSKR = @pch(NDSKR)

'Total Investment, 1993KR:
P_NITTR = @pch(NITTR)

'Private Consumption, 1993KR:
P_NCPRR = @pch(NCPRR)

'Government Consumption, 1993KR:
P_NCGVR = @pch(NCGVR)

'Total Consumption, 1993KR:
P_NCTTR = @pch(NCTTR)

'Gross Domestic Product:

P_NYKMR = @pch(NYKMR)

'-----

'GDP by Origin (Constant 1993KR)

'-----

'Primary Sector

P_NVA1R=@pch(NVA1R)

'Secondary Sector

P_NVA2R=@pch(NVA2R)

'Tertiary Sector

P_NVA3R=@pch(NVA3R)

'-----

'GOVERNMENT BUDGET (Constant 1993KR)

'-----

'Tax on Trade:

P_NGTTR=@PCH(NGTTR)

'Expenditures on social sector:

P_NGSER=@PCH(NGSER)

'Share of Trade Taxes in Total Tax Revenue

S_TD_TX = NGTTR/NGTXR

'Fiscal Deficit:

S_GDF_Y = NGBOR/NYKMR

Annex B: Meetings Conducted

Ministry of Planning

Mr. Lai Phohas, Director,

Mr. San Sy Than, Director, National Institute of Statistics

Ms. Anne McAllister, ADB Consultant, National Institute of Statistics

Mr. Bruce Knapman, Team Leader, ADB Consultant

Ministry of Economy and Finance

Mr. Aun Porn Moniroth, Secretary General

Mr. Pen Thirong, deputy Director, Department of Investment and Cooperation

Mr. Chea Vuthna, Director, Department of Economics Analysis and Forecasting

Mr. Kun Nhem, Deputy Director, Customs and Excise Department

Dr. Hang Chuon Naron, Secretary General

Dr. Hean Sahib, Director, Economics and Finance Institute

Ministry of Commerce

Mr. Sok Siphana, Secretary of State

Mr. Yin Yanno, Assistant

National Bank of Cambodia

Mr. Tann Sokhann, Chief, Balance of Payments Department.

Mr. Dy Sovann, Deputy Director, Economic Forecast Department

Cambodia Development Resource Institute

Mr. Sok Hach, Economic Advisor

World Bank

Mr. Bonaventure Mbida-Assama, Chief, Cambodia Country Office

Mr. Steven Navon Schonberger, Senior Operations Officer

UN World Food Programme

Mr. Mahadevan Ramachandran

Mr. Sik Boreak

Others

Mr. Manfred Hans Staab, Co-Director, Support Programme for the Agricultural Sector in Cambodia (PRASAC II).

Mr. James Crittle, Investment Policy Analyst, Foreign Investment Advisory Service (FIAS).

Dr. Rathin, Roy, ADB Consultant.

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